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THE WEST INDIAN PARROTS.

BY AUSTIN H. CLARK.

FROM the writings of the earlier authors on West Indian subjects who include in their works accounts of the ornithology of those islands as it was in their time, we find that (although the continental systematists included many species which we have no reason to suppose ever inhabited the islands) there were then certain now unrecognized, but apparently well-authenticated forms, bridging over gaps in the avifauna of the district as we understand it at the present day. That these early writers were aware of the difference in the ornithological conditions in the various islands, and of the differences between the avifauna of the islands and that of the mainland, is amply proved by their statements; and I see no reason why we should not accept their assertions as true, at any rate until they can be proved to be false.

The only genera of Psittaci which appear ever to have occurred in the West Indies are *Ara* (Martinique, ? Dominica, Guadeloupe: Haiti, Cuba, including the Isle of Pines, and Jamaica; now everywhere extinct), *Amazona* (St. Vincent, St. Lucia, Martinique, Dominica, Guadeloupe: Porto Rico, Haiti, the Bahamas, Cuba, Grand Cayman, and Jamaica, extinct on Martinique and Guadeloupe), and *Conurus* (Barbados, Martinique, Dominica, Guadeloupe: St. Croix, St. Thomas, Porto Rico, Haiti, Cuba, and Jamaica, extinct in the Lesser Antilles). We thus have two distinct faunal areas indicated by West Indian Psittaci; (1) a Greater Antillean, with its center at Jamaica (*Ara*, two species of *Amazona*, *Conurus*), extending to Cuba and Haiti (*Ara*, *Amazona*,

Conurus), Porto Rico (*Amazona*, *Conurus*), the Bahamas (*Amazona*), St. Thomas and St. Croix (*Conurus*); and (2) a Lesser Antillean, with its center at Dominica (*Ara*, two species of *Amazona*, *Conurus*), extending to Guadeloupe and Martinique (*Ara*, *Amazona*, *Conurus*), and southward to St. Lucia (*Amazona*), St. Vincent (*Amazona*), and Barbados (*Conurus*). We have no trustworthy evidence that any of the Psittaci ever occurred on Grenada or the Grenadines (southern Lesser Antilles), Montserrat, Antigua, Barbuda, Nevis, St. Kitts, or on the small islands between St. Kitts and St. Croix (northern Lesser Antilles); thus these two faunal areas (I am speaking of the Psittaci alone) are entirely separated from each other, and the Lesser Antillean is separated from the continental (as represented by Trinidad with continental species of *Ara*, *Amazona*, *Pionus*, and *Urochroma*,[1] and Tobago with *Amazona* and *Pionus*) by another wide gap. None of the South American forms occur nearer to the Greater Antilles than Yucatan, and are there represented by quite different species.[2]

At the present day *Ara* has disappeared from these islands, *Amazona* has been extirpated from Guadeloupe and Martinique, and *Conurus* from all parts of its Lesser Antillean range.

GREATER ANTILLES.

Fortunately, all the species of *Amazona* which have been recorded from the Greater Antilles have survived, though in greatly diminished numbers, to the present day. They are:

Jamaica: *Amazona collaria* (Linn.); *A. agilis* (Linn.).

Cuba: *A. leucocephala* (Linn.), var. (a) albinistic, *paradisi* Linn.

Bahamas: *A. leucocephala bahamensis* Bryant.

Haiti: *A. sallæi* (Scl.).

Porto Rico: *A. vittata* (Bodd.).

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[1] *Conurus* does not appear to occur in Trinidad, although recorded from there by a number of authors.

[2] *Conuropsis* occurs in Florida; the white-headed Greater Antillean parrots appear to be allied to *Amazona albifrons* of Central America, and the Lesser Antillean species to *A. vinacea* of Brazil.

Among the earlier authors we find other species, which have been erroneously credited to these islands; these are:

Jamaica : *Amazona æstiva* (Linn.), Brisson, Orn. IV, p. 277, 1760, "Psittacus amazonicus jamaicensis."[1]

A. amazonica (Linn.), Brisson, *l. c.* p. 233, "Psittacus Jamaicensis icterocephalus" (variety).

Psittacus erithacus Linn., Linnæus, Syst. nat. I, p. 144, no. 24, 1766.[2]

Cuba: *A. versicolor* (Müll.), D'Aubenton, Pl. Enl. 360, "Le Perroquet de la Havane."

Haiti: *A. vittata* (Bodd.), D'Aubenton, Pl. Enl. 792, "Le Perroquet de St. Domingue."

LESSER ANTILLES.

GUADELOUPE.— Dutertre, in his 'Histoire Générale des Isles des Christophie, de la Guadeloupe, de la Martinique, et autres dans l'Amérique' (Paris, 1654), says (p. 298): "The Parrot of Guadeloupe is almost as large as a fowl. The beak and the eye are bordered with carnation. All the feathers of the head, neck, and underparts are of a violet color, mixed with a little green and black, and changeable like the throat of a pigeon.[3] All the upper part of the back is brownish green. The long quills are black, the others yellow, green, and red, and it has on the wing-coverts two rosettes of rose color. When it erects the feathers of its neck, it makes a beautiful ruff about its head,[4] which it seems to admire, as a peacock its tail. It has a strong voice, talks very distinctly, and learns quickly if taken young. It lives on the wild

[1] I have only given one reference in each case.

[2] The habitat is given by Linnæus as Guinea and Jamaica. The species was probably often brought to Jamaica in slave ships and reshipped to Europe.

[3] It is not remarkable that the bird is described as iridescent; freshly killed birds of several species of *Amazona* (perhaps most noticeable in *A. guildingii*) examined in the field appear to possess this quality to a greater or lesser degree.

[4] Other species of *Amazona* when excited can raise a "ruff" about their neck. I have noticed it particularly in *A. guildingii.*

fruits which grow in the forests, except that it does not eat the manchioneel. Cotton seed intoxicates it, and affects it as wine does a man, and for that reason they eat it with great eagerness.

"The flavor of its flesh is excellent, but changeable, according to the kind of food. If it eats cashew nuts, the flesh has an agreeable flavor of garlic; if 'bois des inde' it has a flavor of cloves and cinnamon; if on bitter fruits, it becomes bitter like gall. If it feeds on genips, the flesh becomes wholly black, but that does not prevent its having a very fine flavor. When it feeds on guavas it is at its best, and then the French commit great havoc among them."

Later, in his 'Histoire Générale des Antilles[1] habitées par les François' (II, p. 250), he repeats this description and adds: "We had two which built their nest a hundred paces from our house in a large tree. The male and the female sat alternately, and came one after the other to feed at the house, where they brought their young when they were large enough to leave the nest."

In the 'Histoire Naturelle et Morale des Isles Antilles de l'Amérique' (Rotterdam, 1658)[2] we find (p. 157; 2nd. edition, p. 175): "There are in almost all the Antilles Parrots, which the Indian inhabitants call in their language 'Kouléhuec,' and which go in flocks like starlings. The hunters place them in the rank of game birds, and do not think it a waste of powder to shoot them; for they are as good and fat as the best fowl, especially when young, and at the season of the fruiting of the many trees upon which they feed. They are of different sizes and colors in the different islands, so that the old inhabitants can tell the place of their birth by their size and color."

Père Labat in his 'Nouveau Voyage aux Isles de l'Amérique'[3] (II, p. 214, 1742) says: "The Parrots of these islands are distinguishable from those of the mainland of Guinea (? Guiana) by

[1] In three volumes; Vols. I, II, 1667; Vol. III, 1671. Antilles is spelt Ant-Iles in the third volume to agree with a theory of the author's as to the derivation of the word.

[2] Anonymous, but credited to C. César de Rochefort. A second edition appeared in 1665.

[3] In five volumes; there is an earlier edition (Paris, 1722) in ten volumes which I have not been able to examine.

their different plumage; those of Guadeloupe are a little smaller than the Macaws. The head, neck, and underparts are slaty, with a few green and black feathers; the back is wholly green, the wings green, yellow, and red."

Brisson (Orn. IV, p. 302, 1760), under "Le Perroquet de la Guadeloupe, Psittacus aquarum lupiarum insulæ," says: "Psittacus major brevicaudatus, superne viridis, inferne cinereo-cærulescens, capito et collo cinereo-cærulescentibus, viridi et nigro variegatis; rectribus viridibus. Head, throat, and neck ashy bluish, varied with green and black. Back and rump green. Upper tail-coverts and scapulars green. Under parts, sides, thighs, and under tail-coverts, ashy bluish. Wings green, varied with red and yellow. Found in Guadeloupe."

Buffon (Hist. Nat. Ois. VI, p. 233, 1779), under "Le Craik à tête violette," quotes Dutertre's descriptions given above and says: "We have never seen this parrot, and it is not found in Cayenne. It is even very rare in Guadeloupe to-day, for none of the inhabitants of that island have given us any information concerning it; but that is not extraordinary, for since the islands have been inhabited, the number of parrots has greatly diminished, and Dutertre remarks in particular of this one that the French colonists wage a terrible war on it in the season when it is especially fat and succulent."

Latham (Gen. Hist. Birds, IV, p. 217, 1822) refers to this bird under the name of "The Ruff-necked Parrot," and quotes Dutertre's description.

Gmelin has given (Syst. Nat. I, p. 337, 1789) the name *Ps[ittacus] violaceus*, based on the "Psittacus aquarum Lupiarum insulæ" of Brisson, "Crick à tête violette" of Buffon, and "Le Perroquet de la Guadeloupe" of Dutertre.

These are the chief references to this bird, which appears to have become extinct at a very early date. Count Salvadori (Cat. Birds Brit. Mus. XX, p. 336, 1891) refers this bird to *Deroptyus accipitrinus* (Linn.), a continental species[1] ranging from Guiana southward and westward through the Amazons valley. The genus *Deroptyus* is characterized (in part) by having a comparatively

[1] The genus is monotypic.

long tail (more than two thirds of the length of the wing) and the feathers of the hind neck very long, broad, and erectile. *D. accipitrinus* is colored as follows: green; head brown, pileum grayish white; breast and abdomen, and long feathers of nape, dark red with blue edges; wings green and black, slightly tinged with blue on the tips of the secondaries; tail green; measurements: length, 14 in., wing 8 in., tail 6.4 in. The only apparent reason for referring the Guadeloupe bird to this form appears to be the mention of its having a frill about its neck, a peculiarity common (although not in such a marked degree as in *Deroptyus*) to several species of *Amazona*. The colors of the two birds are quite different as given; we have good evidence that the parrots of Guadeloupe really did exist, and Buffon states that it is not found in Cayenne (in the habitat of *D. accipitrinus*.) *D. accipitrinus* was well known to Buffon, and is figured in the Planches Enluminées (No. 526).

The Guadeloupe parrot appears to have been most nearly related to *Amazona imperialis* Richm.[1] of Dominica, at present the largest of the genus.

The color of the two birds is

A. imperialis.	*Parrot of Guadeloupe.*
Head, neck, and underparts dark purple blue.	Head, neck, and underparts violet, mixed with a little green and black[2] (Dutertre); slaty (Labat); ashy bluish (Brisson).
Upper parts green.	Upper parts brownish green[3] (Dutertre); green (Labat; Brisson).
Wing: primaries dark brown; secondaries purple, green, and blue; speculum, and metacarpal edge, crimson.	Wing: long quills black, other feathers yellow, green, and red[4] (Dutertre); green, yellow and red (Labat).
Orbital ring and cere grayish blue.	Orbital ring and cere red (Dutertre).

[1] *Augusta* Vigors; *vide* Richmond, Auk, XVI, p. 186, 1899.

[2] Possibly the borderings of the feathers (*A. imperialis* has the feathers edged with black). The green may be an evidence of immaturity; the young of *A. guildingii* is green.

[3] *A. guildingii* when not quite adult is brownish green.

[4] Dutertre's "rosettes" are probably scattered feathers in the lesser wing coverts.

I propose, then, that the following species be admitted to a place in the Lesser Antillean avifauna.

Amazona violacea (*Gmel.*).

GUADELOUPE PARROT.

Characters. Nearest to *A. imperialis* of Dominica. Size large; head and underparts violet or slaty gray. Wings green, varied with red and yellow; longest quills black.

Habitat. Guadeloupe.

No other parrot has ever been mentioned as occurring in Guadeloupe.

DOMINICA.— *Amazona imperialis* Richm. *A. bouqueti* (Bechst.).

MARTINIQUE.— Although all the earlier writers mention parrots on Martinique, they give us no detailed account of them. Labat says, "The Parrot is too common a bird for me to stop to give a description of it." He says later, however (II, p. 214) that the parrot "of Dominica has some red feathers in its wings, in its tail, and under the throat (*A. bouqueti*)." "That of Martinique (*loc. cit.*) resembles it, except that the top of the head is slate color, with a little red."

Buffon says (Hist. Nat. Ois. VI, p. 214): "The Parrot of Martinique, mentioned by Père Labat, which has the top of the head slaty with a few spots of red is, as is seen, different from our 'White Headed Parrot' (*A. leucocephala*) and M. Brisson states without foundation that it is the same."

For the sake of completing the list of this genus in the Lesser Antilles, we may adopt, provisionally, for this species, the name of

Amazona martinicana nom. nov.

The following species have been erroneously credited to Martinique:

Amazona sallæi (Scl.), D'Aubenton, Pl. Enl. 548, "Le Perroquet à ventre pourpre de la Martinique."

A. leucocephala (Linn.), Brisson, Orn. IV, p. 242, 1760. "Psittacus Martinicanus."

ST. LUCIA.— *Amazona versicolor* (Müll.).

ST. VINCENT.— *A. guildingii* (Vig.).[1]

The species of *Amazona* known from the West Indies are:

Amazona agilis (Linn.). *Jamaica.*
Amazona collaria (Linn.). *Jamaica.*
" **caymanensis** (Cory). *Grand Cayman.*
" **leucocephala** (Linn.). *Cuba.*
" " **bahamensis** Bryant. *Bahamas.*
" **sallæi** (Scl.). *Haiti.*
Amazona vittata (Bodd.). *Porto Rico.*
Amazona violacea (Gmel.) *Guadeloupe.*[2]
" **imperialis** Richm. *Dominica.*
Amazona bouqueti (Bechst.). *Dominica.*[2]
" **martinicana** nom. nov. *Martinique.*
Amazona versicolor (Müll). *St. Lucia.*
Amazona guildingii (Vig.). *St. Vincent.*

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[1] Concerning parrots in Barbados, Sir Hans Sloane says (Nat. Hist. Jamaica, I, p. 34. 1707): "Turner (ap. Purchas. p. 1265) found Hogs, Pigeons, and Parrots here (Barbados). This is the only statement I can find of their occurrence on that island by a person who actually visited the place. Albin (Nat. Hist. Birds, III, p. 11, pl. 11, 1738, "The Barbados Parrot"). Edwards (Birds, IV, p. 162, 1751, "The Great Green Parrot from the West Indies" [Barbados]; *loc. cit.* p. 246,' 'Psittacus viridis major occidentalis"). Latham (Gen. Syn. I, p. 284, No. 90, 1781 "The Ash-fronted Parrot" [Barbados]; Gen. History, II, p. 238, 1822). Brisson (Orn. IV, p. 236, 1760, "Le Perroquet des Barbades .... Psittacus Barbadensis") and Gmelin (Syst. Nat. I, p. 339, 1788 "*Ps[ittacus barbadensis*"). These authors all give a parrot as having inhabited Barbados. The species as described is referable in all cases to varieties of *A. æstiva* or *A. ochroptera*. Possibly there was an *Amazona* on the island at the time of its colonization allied to these species, but there is no definite proof that such was the case. If there were parrots there, they might very well have been members of this group, as species occur on Trinidad and on Tobago. The evidence of the occurrence of parrots on Grenada is very poor, the single reference (Dutertre, Hist. Gén. des Antilles habitées par les François, II, p. 249, 1667) possibly referring to Tobago.

[2] Extinct.

THE GREATER ANTILLEAN MACAWS.

BY AUSTIN H. CLARK.

THE following continental species of Macaws have been erroneously credited to the Greater Antilles by the earlier writers. The mistakes apparently arose from the birds having been brought from the Mosquito Coast (or some other part of Central or South America), by ships trading locally, to Jamaica, and then, after a residence in that island, being reshipped to England or to Europe as natives there. The interior of Jamaica was then much less known than was the interior of Cuba or Haiti; thus species which would have been at once recognized as foreign to those islands passed as resident on Jamaica. Moreover, what appear to have been escaped birds were occasionally killed in the woods (*vide* Browne, Civil and Nat. Hist. Jamaica, p. 472, 1789, under "*The Blue Mackaw of Edwards*"), which tended to confirm people in their ideas that the birds were natives, they believing that they were stragglers from their inaccessible mountain homes.

Now Macaws, like Parrots, although birds of powerful flight and spending much time on the wing, seldom pass over any great extent of water. Although larger and stronger than parrots, they appear to be even more attached to the mainland than are they; whereas species of the genus *Amazona* are found on Cozumel, Tres Marias, Tigre and Ruatan (in the Bay of Honduras), Aruba, Curaçao, Margarita, Trinidad, Tobago, and other islands off the northern South American coast (I do not consider in this connection the species peculiar to, and occurring on, the West Indies). Macaws have only been reported from Trinidad, and no specimens appear ever to have have obtained there (*Ara makawuanna* Léotaud, Ois. de l' île de la Trinidad, app. p. 557, 1866; Chapm. Bull. Am. Mus. Nat. Hist. VI, p. 66. 1894).[1] It appears, therefore, very unlikely that any continental species could ever have strayed

[1] Count Salvadori (Cat. Birds Brit. Mus. XX, p. 168, 1891) gives Trinidad in the range of *A. hahni*, and mentions an unsexed skin (purchased) from that island. Possibly Léotaud's species was in reality *A. hahni*. Some species of green macaw certainly does occur there.

as far as Jamaica, although it is possible that they occasionally escaped and were killed in an apparently feral state in the woods. I have known of *A. ararauna* and *A. macao* being killed on the island of Barbados, probably having come from ships at anchor in the harbor, and, of course parrots (and in one case I know of *A. macao*) are sometimes shot even in the woods of New England.

Ara ararauna (Linn.).

BLUE AND YELLOW MACAW.

Jamaica, SLOANE, Nat. Hist. Jamaica, II, p. 296, 1725. "VI. *Psittacus maximus cyanocroceus.*" — ALBIN, Nat. Hist. Birds, II, p. 16, 1738. "The Maccaw from Jamaica" (part).[1] — BRISSON, Orn. IV, p. 191, 1760. "*Ara jamaicensis cyanocrocea.*" — BROWNE, Civil and Nat. Hist. Jamaica, p. 472, 1789 "The Blue Mackaw of Edwards." — LATHAM, Gen. Hist. Birds, II, p. 107, 1822. "The Blue and Yellow Maccaw."[2]

Ara macao[3] (Linn.).

RED AND YELLOW MACAW.

Jamaica, ALBIN, *loc. cit.* BRISSON, *loc. cit.* p. 188. "*Ara jamaicensis.*"

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[1] Albin figures a Red and Blue Macaw (pl. 17) as from Jamaica, saying it is the male of the Blue and Yellow Macaw. It was probably intended to represent *A. macao* (possibly colored from memory) which was commonly considered the male of *A. ararauna*.

[2] The reference to Latham's 'Index' and 'Synopsis' are contained in this work, and are therefore not given here.

[3] The name "*macao*" was given because the bird was supposed to have come from Macao, near Hong Kong. The English word Macaw is said by some to have been derived from it.

Ara chloroptera (*Souancé*).

RED AND BLUE MACAW.

LATHAM, *loc. cit.* p. 102 "Red and Blue Maccaw," (occurs on "some of the islands [Antilles] also," as well as on the continent).

Ara severa (Linn.).

Jamaica, BRISSON, *loc. cit.*, p. 202. "*Ara brasiliensis erythrochlora.*" — LATHAM, *loc. cit.* p. 112. "Brazilian Green Maccaw" (refers to Edwards [Glean.], pl. 229 [1758]).

Ara militaris (Linn.).

MILITARY MACAW.

Gosse (Birds of Jamaica, p. 261, 1847) supposes that this species might have been a native of Jamaica, living in the wilder mountain regions, and remarks that every description he received of the bird agreed with that of *A. militaris*, "the Great Green Macaw of Mexico." I agree with Mr. Cory[1] that "it is not impossible that *Ara militaris* may have occurred in Cuba and Jamaica, but it is improbable. The bird recorded as such was perhaps *A. tricolor* wrongly identified."[2]

We have thus narrowed down the Greater Antillean Macaws to a single species (*A. tricolor*), which is not known outside of those islands; but which, like all the West Indian parrots (*Amazona*) is peculiarly Antillean.[3] This species (or, perhaps, one closely related) appears certainly to have formerly lived on Jamaica. Sloane (Nat. Hist. Jamaica, II, p. 297, 1725) says, under "The Small Maccaw" ("The Great Maccaw," is *A. ararauna*): "They are very common in the woods, and are eaten as Pigeons, but when young are tamed and kept as Parrots."

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[1] Birds W. I., p. 178.

[2] The young of *A. tricolor* appears to have been largely green.

[3] I have not given all the references under the species listed above, but only such as seemed most important.

On Cuba this bird survived until very recent years, its last stronghold being the extensive swamps in the southern part of the island.

We find in Brisson (Orn. IV, p. 183, 1760, under "L'Ara Rouge"): "Macaws were formerly very common in Santo Domingo. I see from a letter of M. le Chevalier Deshayes that since the French settlements have been extended to the tops of the mountains, these birds have become less common." He quotes M. de le Borde, Médécin du Roi at Cayenne: "In all these islands (Antilles) the Macaws have become very rare, because the inhabitants destroy them for food. They retire into the less frequented districts, and do not come near the cultivated areas."

Brisson's is the only evidence I can find of any Macaws having lived in the island of Haiti; but the statement appears to be authoritative, and he speaks of the bird even at that time (1760) as rare.

I therefore propose the following as probably the true original status for the genus *Ara* in the West Indies.

Ara tricolor (*Bechst.*).

CUBAN MACAW.

HABITAT. Jamaica[1] (extinct); Cuba, including Isle of Pines (recently extinct); Haiti[1] (extinct).

Ara guadeloupensis *Clark.*[2]

LESSER ANTILLEAN MACAW.

HABITAT. Guadeloupe (extinct); ? Dominica[1] (extinct); Martinique[1] (extinct).

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[1] Possibly a closely related species or subspecies.

[2] Auk, XXII, p. 272, July, 1905.

LIST OF BIRDS COLLECTED OR OBSERVED DURING THE BAHAMA EXPEDITION OF THE GEOGRAPHIC SOCIETY OF BALTIMORE.

BY J. H. RILEY.

DURING June and July, 1903, the author accompanied the Geographic Society of Baltimore's expedition to the Bahama Islands for the purpose of collecting reptiles, birds, and mammals for the U. S. National Museum. We sailed from Baltimore in the ninety-two ton schooner 'Van Name,' June 1, and arrived at Nassau, after a very stormy voyage, June 17, where we collected until June 24. Leaving Nassau, June 25, we arrived off Morgan's Bluff, Andros, the same evening and proceeded down the coast to Mangrove Cay where we arrived late the next morning. Here five of the party, including the author, the next day started in a small sponger to Grassy Creek. Arriving at the Creek early in the evening of June 28, we proceeded inland by boat and camped for the night on a small strip of dry ground. Part of the next day was spent in hunting Flamingoes, when we were obliged to leave to rejoin the ship at Green Cay which we did not succeed in doing until late in the evening of the following day, and then only to learn that it was necessary to put back to Nassau, to replenish our water supply. July 2, was spent at Nassau, when we sailed for Eleuthera, arriving off Spanish Wells late in the evening of the same day. On Eleuthera a short time was spent in collecting, varying from a few hours to a whole day, at The Bluff, Gregorytown, Governor's Harbor, and Powell's Point. About three hours of July 9, was spent on Cat Island and about the same time on Rum Cay the next day. July 11 to 13, was spent on Watlings Island and from July 14 to 17, on Long Island, at Clarence Harbor. We reached Nassau again on July 20, where we spent part of the day collecting. On July 22, we spent about four hours on Abaco, opposite Hopetown, which was the last collecting done, as we attempted to sail the next day for Baltimore, but as the wind failed after leaving the harbor we did not get started until the day after.

For a fuller account of the expedition, the geology, physical fea-

tures of the islands, etc., the reader is referred to the Society's Report[1] of which these notes were originally intended to form a part of the report on birds.

Owing to lack of time and the poor facilities for work our collections were not as large as we could have wished, and my only excuse for presenting such a meager list is that it is from a region of exceptional interest and which yet holds many unsolved problems for future investigation.

My thanks are due to Dr. George B. Shattuck, Captain Charles Flower, Mate Davis, many members of the expedition, and especially to Mr. S. H. Derickson, who was also collecting birds, for many favors rendered me during the trip.

1. **Colymbus dominicus** *Linn.* ST. DOMINGO GREBE.— Two were seen on a small lake on Rum Cay; one on a small pond on Watlings Island; and several on the salt pans around Clarence Harbor, Long Island.

2. **Puffinus lherminieri** *Lesson*? ANTILLEAN SHEARWATER.— Several shearwaters, presumably of this species, were seen just before entering Nassau harbor.

3. **Oceanites oceanicus** (*Kuhl*)? WILSON'S PETREL.—Small black petrels followed the vessel in some numbers from the time we passed out of Chesapeake Bay until after we sighted the Nassau light and on the return voyage, but in smaller numbers, soon after we left Abaco until we sighted the Capes. We watched these birds with considerable interest and observed that the feet were carried close together and straight out behind in flight, giving the impression of a longer central tail feather. The wings appeared to have a V-shaped piece taken out of them, where the long primaries meet the secondaries, I presume. In hovering to examine anything or to check their flight they drop the feet into the water and appear to be walking on the waves, but this is only for a brief period, as a rule, when they resume their course. Occasionally they were seen to settle on the water but for a short time only.

4. **Phaëthon americanus** *Grant.* AMERICAN TROPIC BIRD.— Several tropic birds met the vessel the day before we reached Nassau and quite a number came around the vessel after leaving Abaco. They were very bold and one seemed inclined to alight on the rigging.

5. **Phalacrocorax vigua mexicanus** (*Brant*). MEXICAN CORMORANT.— A colony of these cormorants was breeding in some tall mangroves in the large salt water lake on Watlings Island. Most of the young were found

[1] The Bahama Islands. Published by the Geographical Society of Baltimore. 1905. George Burbank Shattuck, Ph. D., Editor. Birds, pp. 347–368. [*Cf.* Auk, XXII, July, 1905, p. 328.]

sitting on the edge of the nests, that were from fifteen to twenty feet up, or on the limbs out of the nest. Some of the young were already in the water with their parents, though they could not fly apparently. A few nests contained heavily incubated eggs. This was on July 11. A few cormorants were seen on the salt pans around Clarence Harbor, Long Island, but as none were shot here their identity is in doubt, though they appeared to belong to the same form as those shot on Watlings. The young are eaten by the inhabitants and are said to be very good. The numerous downy skins found along the shores of the salt lakes on Watlings, would indicate that young cormorant is quite an item in the domestic economy of the islanders.

6. **Fregata aquila** (*Linn.*). MAN-O'-WAR BIRD. — Man-o'-War Birds were seen in greater or less numbers at New Providence, Eleuthera, Cat Island, Rum Cay, Watlings Island, and Abaco. We were much interested in watching a Laughing Gull, early one morning, making repeated swoops at some object floating in the water, when one of these birds came silently up and carried off the booty without an effort, much to the discomfiture of the gull. In flying or sailing, which seems to be done without an effort, the tail is carried closed as a rule.

7. **Phœnicopterus ruber** *Linn.* AMERICAN FLAMINGO. — Not uncommon and breeding on Grassy Creek, Andros. Though we did not reach the nesting grounds, on account of the very short time allotted us to make the trip, we saw the birds in the distance in a long red line and were told that they were nesting there. One that was feeding in a shallow part of the swash, and on which we succeeded in stealing up to within a hundred yards, would put its head under water and then move the feet backward as if it was scratching up the mud to obtain food. In flight the head and feet are held in nearly a straight line with the body and the bird presents a very striking figure, like a pair of black-tipped wings, that appear inadequate for support, fitted to a long red line with a knot at the end where the head is situated. In all we saw a number of detached flocks and single birds, besides the main body in the distance, during the day we spent here, but the birds are very wary from continued persecution by the inhabitants and visiting sportsmen from Nassau. The country they inhabit is very difficult to hunt over, being mostly under water with small keys and mud flats here and there, and is locally called swash. We were told that late in the summer they moult all the flight feathers at once and are then pursued and captured by the inhabitants. A small colony, we were informed, breeds on the lake near Clarence Harbor, Long Island, but we did not have an opportunity of verifying this report.

8. **Herodias egretta** (*Gm.*). AMERICAN EGRET. — Several were shot on Grassy Creek, Andros. They were also seen on Eleuthera, Watlings Island, and Long Island, generally singly.

9. **Hydranassa tricolor ruficollis** (*Gosse*). LOUISIANA HERON. — Very common and breeding on Watlings Island, July 12. All the young seen were nearly, if not quite, able to fly.

10. **Butorides virescens bahamensis** (*Brewster*). BAHAMA HERON.—This light colored, well-marked form of the Green Heron was found in small numbers on New Providence, Andros, Eleuthera, Rum Cay, Watlings Island, and Long Island.

11. **Nyctanassa violacea** (*Linn.*). YELLOW-CROWNED NIGHT HERON.—This was a very common heron on Grassy Creek, Andros. A nest constructed loosely of sticks was built about eighteen inches above the ground in a bush on Grassy Creek. It was about two feet in diameter and contained two young nearly ready to fly and another young was found on the ground that had evidently left the nest, June 29. Some birds shot from a cliff on Eleuthera had the bills coated apparently with carrion. It was also seen on Watlings and Long Islands.

12. **Pœcilonetta bahamensis** (*Linn.*). BAHAMA DUCK.—Three ducks, apparently of this species, were seen on Grassy Creek, Andros. One was shot and several others seen on Long Island, July 17. The specimen shot was a female and refused to fly, indicating that she had a nest in the near vicinity, but though we searched for a long while, our efforts were futile. Upper mandible bluish slate, with an ochraceous yellow blotch on each side near the base, in life.

13. **Colinus virginianus bahamensis** (*Maynard*). BAHAMA BOB-WHITE.—Though often heard and seen on two or three occasions crossing the roads on New Providence, we did not succeed in securing any specimens. We found it impossible to make them rise in the thick brush. They are said to have been introduced by one of the early plantation owners, which would seem to invalidate the claims of *bahamensis* to recognition.

14. **Rallus crepitans coryi** (*Maynard*). BAHAMA CLAPPER RAIL.—One was shot by Mr. Derickson on New Providence, June 24. A Clapper Rail was heard on Grassy Creek, Andros, and another on Eleuthera. These rails keep to the mangroves and it is impossible to flush them. The one taken was only shot after an hour or two's work by both of us, and then only after we had kept still for a time. They skulk under the roots and only those who have been in a mangrove swamp can appreciate the difficulty of trying to make them rise; occasional glimpses can sometimes be obtained as they glide from clump to clump. They are noisy and make their presence known, however.

The specimen taken, when compared with the forms of Clapper Rail inhabiting the West Indies, is much lighter in color, but from true *crepitans* of the northeastern United States it is hardly different, being only slightly lighter in color with an apparently shorter and slenderer bill.

15. **Larus atricilla** *Linn.* LAUGHING GULL.—Laughing Gulls were seen in small numbers at New Providence, Andros, Eleuthera, Rum Cay, Watlings, and Long Islands.

16. **Gelochelidon nilotica** (*Linn.*). GULL-BILLED TERN.—Two or three were seen hawking over a clearing on Eleuthera; about a dozen were found frequenting a small inland lake on Rum Cay; and they were not uncommon around the old salt pans on Long Island.

17. **Sterna maxima** (*Boddaert*) ROYAL TERN.—A fine specimen was shot by Dr. Penrose and a few others were seen on Andros; a few were seen around Eleuthera and Long Island.

18. **Sterna sandvicensis acuflavida** (*Cabot*)? CABOT'S TERN.—A large tern with an apparently yellow-tipped bill was seen sitting on a buoy as we entered Nassau, June 17; I take it to be of this form.

19. **Sterna antillarum** (*Lesson*). LEAST TERN.—This species was breeding in some numbers on Little Mangrove Cay, Andros; they were also seen in small numbers around Eleuthera, Rum Cay, Watlings Island, and Abaco.

20. **Sterna anæthetus** *Scopoli.* BRIDLED TERN.—A few were shot at Mangrove Cay, Andros; they were apparently breeding in immense numbers on a small key just back of Governor's Harbor, Eleuthera, July 7, where we shot a number. A few were seen opposite Elbow Cay, Abaco.

21. **Anous stolidus** (*Linn.*). NODDY.—One was seen between Andros and Green Cay, June 30.

22. **Himantopus mexicanus** (*Müller*). BLACK-NECKED STILT.—One was seen on Grassy Creek, Andros; they were not uncommon on Eleuthera, Rum Cay, Watlings, and Long Islands. They are very noisy, circling around the invader of their haunts and keeping up a continuous racket. On this account they are known as *tell tales*. Almost every small pond or inland mud flat seemed to have a few pairs wading around with stately tread until the intruder was sighted when their infernal racket began.

23. **Actodromas minutilla** (*Vieillot*). LEAST SANDPIPER.—A flock of seven was found on Long Island, July 16, and several taken.

24. **Catoptrophorus semipalmatus** (*Gm.*). WILLET.—Very common on Grassy Creek, Andros, where a young specimen was taken by Mr. Derickson on which the feathers were just beginning to appear, June 29. A set of four heavily incubated eggs was taken by Mr. Mooney at Mangrove Cay, Andros, June 27. A few pairs were found around a small pond on Rum Cay, and several were seen in a similar situation on Long Island.

Our specimens appear to be smaller than *semipalmatus* from the eastern United States with shorter and slenderer bills.

25. **Oxyechus vociferus** (*Linn.*). KILLDEER.—A single specimen was flushed, but not secured, on Cat Island, July 9.

26. **Ægialitis semipalmata** (*Bonap.*). SEMIPALMATED PLOVER.—A single specimen was shot by Mr. Derickson on Long Island, July 17.

27. **Ægialitis nivosa** *Cassin.* SNOWY PLOVER.—A single specimen in worn plumage was shot and another seen by Mr. Derickson on Long Island, July 16, as reported in 'The Auk,' XX, 1903, 433.

28. **Ochthodromus wilsonius** (*Ord*). WILSON'S PLOVER.—Not uncommon on Andros; a pair were evidently nesting on Rum Cay, July 10; not uncommon on Long Island.

All the birds taken seem to be paler and smaller than specimens from the eastern United States, but are nearer *wilsonius* than *rufinuchus* of the West Indies.

29. **Hæmatopus palliatus** *Temminck.* AMERICAN OYSTER-CATCHER. —Two were seen standing on the rocks and one was taken on Long Island, July 17. Mr. Derickson saw three or four additional specimens near the same place but was unable to secure any.

The characters assigned to *prattii* do not appear to be constant and hardly seem to warrant separation. I say this after comparing three specimens from the Bahamas with a series of *palliatus* from various localities. Bill and ring around eye bright orange; irides gamboge, shot with brown.

30. **Columba leucocephala** *Linn.* WHITE-CROWNED PIGEON. — A female taken on New Providence, where they were not common, June 23, had an egg in the oviduct ready to be deposited. Thousands were seen flying, late in the evening, from Andros towards Green Cay, where there was a large breeding colony. Small flocks and single birds were seen on Eleuthera, Cat Island, Watlings, and Long Island. A nest was found on Abaco, July 22, about fifty feet up in a pine. It contained young, I judged, from the actions of the parents. Irides buff.

31. **Zenaidura macroura** (*Linn.*). MOURNING DOVE. — A male, apparently not different from birds from the eastern United States, was shot on Long Island, July 16.

32. **Zenaida zenaida** (*Bonap.*). ZENAIDA DOVE. — This dove was seen on New Providence, Eleuthera, Cat Island, Watlings, and Long Island. They were generally seen singly, flying back and forth, and on no island in any numbers. Dr. Coker showed me a nest, containing two young with the feathers just sprouting, on Long Island, July 17. The nest was quite an elaborate affair for a dove, composed of small twigs and placed in a small cavern of the rough coral rock of the beach.

33. **Columbigallina passerina bahamensis** (*Maynard*). — BAHAMA GROUND DOVE. — This well-marked form of Ground Dove was abundant in clearings or along the roads on New Providence, Eleuthera, Cat Island, Watlings, and Long Island, but not very common on Abaco where we landed. Bill (in life) black, except at base of lower mandible where it is reddish.

34. **Cathartes aura** (*Linn.*). TURKEY VULTURE. — Quite a number were seen on Andros, where they appear to be not uncommon.

35. **Pandion haliaëtus ridgwayi** (*Maynard*). BAHAMA OSPREY. — Several of this doubtful form of osprey were seen on Long Island and one was shot by Mr. Derickson, but not recovered.

36. **Speotyto cunicularia cavicola** *Bangs.* NASSAU BURROWING OWL. — A male shot on New Providence, June 19, was sent to me in the flesh by Mr. C. Hamilton Burnside.

This specimen when compared with *S. c. floridana* is apparently of a more reddish cast with larger and whiter spotting, and the spots on the

outer primary are less pronounced and do not reach the shaft of the feather by a considerable distance, producing an entirely different pattern. It is lighter in color than *S. c. dominicensis* and the pattern of the outer primary is different. I have not seen a specimen of *S. c. bahamensis* from Great Inagua.

37. **Crotophaga ani** *Linn.* ANI.— These noisy birds were common on New Providence, but rather rare on Eleuthera, Watlings, and Long Island.

38. **Coccyzus minor maynardi** (*Ridgway*). MAYNARD'S CUCKOO.— One was shot and another seen on New Providence; a single specimen was taken on Long Island.

39. **Saurothera bahamensis** *Bryant.* BAHAMA LIZARD CUCKOO.— A specimen was seen after a heavy tropical rain sitting in a dejected attitude with drooping wings, drying its plumage, and shot. A male, shot in worn plumage, July 20, is without the black subterminal bar on the tail, though apparently adult; this would seem to indicate that the fully adult plumage is not acquired until after a complete fall moult or until the second year. Though apparently not uncommon on New Providence (it was only observed there) it is more often heard than seen, as it keeps to the thick scrub. While its notes did not sound so loud or so varied as those of *S. merlini* of Cuba they have a general unmistakable resemblance. Bare skin around the eye vermillion; irides brown.

40. **Dryobates villosus maynardi** *Ridgway.* MAYNARD'S WOODPECKER. — Two females and one male of this small race of the Hairy Woodpecker were taken on New Providence, and about as many more were heard.

41. **Centurus superciliaris nyeanus** (*Ridgway*). NYE'S WOODPECKER. — For an account of the taking of a specimen of this woodpecker see 'The Auk,' XX, 1903, 434.

This only appears to be a well-marked race of *Centurus superciliaris* of Cuba, from which it differs in the following points: (1) smaller size; (2) smaller black superciliary patch; (3) lighter color, both above and below, with hardly any of the olive tinge so conspicuous in *superciliaris*; and (4) in having less red on the belly. Its nearest relative is probably *Centurus superciliaris blakei* of Abaco, from which it differs: (1) in being lighter in color; and (2) in not having so much olive below.

42. **Chordeiles virginianus vicinus** *Riley.* BAHAMA NIGHTHAWK. — I have nothing to add to my account of this bird already given in 'The Auk,' XX, 1903, 431.

43. **Doricha evelynæ** (*Bourcier*). BAHAMA WOOD-STAR.— This hummer was especially common on New Providence, where the females and immature males seemed to outnumber the adult males about ten to one. They were also seen on Andros, Eleuthera, Cat Island, Rum Cay and Long Island, but on none in such numbers as at Nassau. They did not appear to be as active as *Trochilus colubris*, and most of those seen feeding were hovering around spider webs. The greater part of their time seemed to be spent in resting, perched quietly in a conspicuous place.

44. **Riccordia ricordii æneoviridis** (*Palmer & Riley*). BAHAMA EMERALD HUMMINGBIRD. — The only hummer seen by us on Abaco, where it did not appear to be uncommon was of this race. It is much more active than the preceding species but I could detect no difference in habits from true *ricordii*.

Mr. Bonhote, in 'The Ibis,' July, 1903, 293, says that he sees no good reason for separation, but admits that the present form differs from *ricordii* in (1) the middle feather of Abaco birds being slightly broader, and (2) the tail of a more coppery bronze. I have examined our series of *ricordii* and *æneoviridis* again and find that the tail of Abaco birds is less deeply forked and that the middle tail feather is broader. Abaco birds average a more coppery green both above and below and I think the differences between the two birds are sufficient to keep them apart as geographical races at least.

45. **Tyrannus dominicensis** (*Gm.*). GRAY KINGBIRD. — Very common on New Providence, Andros, Eleuthera, Cat Island, Rum Cay, Watlings Island, Long Island, and Abaco. Does not appear to be as noisy as *Tyrannus tyrannus*, but it was by far the noisiest bird met with, with the exception of the Black-necked Stilt and the Willet. A nest, with three heavily incubated eggs, was placed in a small mangrove about five feet above the water on a small bay near The Bluff, Eleuthera, July 4. Another nest was found in a slender dead tree on Long Island, July 14. It was about fourteen feet above the ground and out on a slender branch. We could not reach the nest but could see that it contained eggs. One of the parents of this nest was very bold, darting down almost into my face while I was trying unsuccessfully to reach the eggs. A nest was seen on Abaco, July 22, about fifty feet up in a pine, that, judging from the actions of the parents, must have contained young on this date.

A male shot on Eleuthera, July 6, has the bill, almost if not quite, equal to some specimens of *T. d. rostratus*, but it is slightly more attenuate at the end.

46. **Pitangus bahamensis** *Bryant*. BAHAMA PITANGUS. — Found only amongst the pines on New Providence, where they were by no means common. They did not seem to be as noisy as *Pitangus caudifasciatus* of Cuba, and the white at the base of the tail is not nearly so conspicuous in flight.

47. **Blacicus bahamensis** (*Bryant*). BAHAMA PEWEE. — An immature male was shot on New Providence, June 19, amongst the pines. One was noticed on the border of the pines on Abaco, July 22, but not secured. No others seen.

48. **Mimus gundlachi** *Cabanis* GUNDLACH'S MOCKINGBIRD.

49. **Mimus gundlachi bahamensis** (*Bryant*). BRYANT'S MOCKINGBIRD. — Very common on Andros, Eleuthera, Cat Island, Rum Cay, Watlings Island, and Long Island. Not as good a songster as *polyglottos* nor are the notes so varied. Numerous unoccupied nests were seen on Eleuthera in the orange trees about four feet up. Mr. Derickson found a nest on

Eleuthera, July 6, and caught the parent alive with his hand on the nest. The nest contained three heavily incubated eggs with a creamy white ground, covered rather evenly with small spots and streaks of two shades of vinaceous. They measure 28.3 by 20.4, 28.5 by 20, and 28.5 by 20.4 mm. respectively.

Gundlach says (Orn. Cubana, 1895, 53) that the type of Cabanis's *M. gundlachi* came from the Cayo Santa Maria, off the northern coast of Cuba, where it was probably a straggler, as Gundlach apparently did not meet with it again in a wild state. Mr. Ridgway has discriminated two forms, a northern and a southern. Bryant's name applies to the northern form.

50. **Margarops fuscatus** (*Vieillot*). PEARLY-EYED THRUSH.— Not uncommon on Rum Cay and Watlings Island, but much rarer on Long Island. These birds keep to the thick brush and are rarely seen in the open, but they have a beautiful song, much superior to that of *Mimus gundlachi*, which makes their presence known. They appear to be very shy and dart to cover at the least alarm if they happen to be away from it. One was seen in hot pursuit of a Gray Kingbird on Rum Cay that seemed only too glad to escape by flight. Irides yellowish-white.

51. **Mimocichla plumbea** (*Linn.*). BAHAMA RED-LEGGED THRUSH.— Found sparingly on New Providence, Eleuthera, and Cat Island. Keeps to the thicker cover and is rarely seen. Sings perched in the top of the taller trees, and while the song is not bad, it is far inferior to that of *Margarops*. A nest, composed of palmetto strips and rootlets, was found, July 7, on Eleuthera, about seven feet from the ground in the crown of a paw-paw tree. It contained three young just from the egg. The local name for this thrush is "Blue Thrasher" and on Cat Island "Blue Jay." Tarsi and ring of skin directly around the eye, coral red.

52. **Polioptila cærulea cæsiogaster** *Ridgway*. BAHAMA GNATCATCHER.— A male was 'squeaked up' and shot on New Providence, June 19, in the pines. After shooting the male three young barely able to fly were discovered, and though I waited around for some time and returned to the same place next day, nothing was seen of the female.

53. **Vireosylva calidris barbatulus** (*Cabanis*). BLACK-WHISKERED VIREO.— Common on New Providence, Eleuthera, and Long Island. Has a monotonous song resembling that of *V. olivaceus* but is probably on the whole better.

54. **Vireo crassirostris** (*Bryant*). BAHAMA VIREO.

55. **Vireo crassirostris flavescens** *Ridgway*. YELLOW BAHAMA VIREO. — Vireos of either one or the other of these forms were rather common in the thick brush on all the islands visited. In habits and song they resemble *Vireo noveboracensis*, but the notes are more varied and of endless variety. One of the commonest notes heard sounds something like *chip-cheree*. The irides are brown. Our specimens are either *crassirostris*, *flavescens*, or intermediates, and seem to throw no light on the status of the two forms, as the following list of specimens will show:

Vireo crassirostris.— New Providence, 10; Abaco, 2. *Intermediates.*— New Providence, 3; Eleuthera, 2; Cat Island, 1; Rum Cay, 1; Long Island, 4. *Vireo c. flavescens.*— Eleuthera, 5; Long Island, 2.

56. **Callichelidon cyaneoviridis** (*Bryant*). BAHAMA SWALLOW. — We found these birds only along the road west of Nassau, New Providence. On cloudy days they would come out in force and hawk about the cliffs and open fields; when it was clear we could hardly find a bird. They are very graceful in flight and the forked tail of the adult is then very conspicuous, reminding one at a distance of the Barn Swallow. The tail of the immature is not very prominently forked and the iridescent color of the adult is lacking; in this plumage resembling young of *Iridoprocne bicolor*. On July 2, we saw twelve of these swallows sitting in a row on the eaves of the Colonial Hotel, the only time we saw any of them perched.

57. **Dendroica petechia flaviceps** *Chapman*. BAHAMA YELLOW WARBLER.— Common in the mangroves near the beach on Rum Cay; a few were found along the shore on Watlings Island. Like *D. p. gundlachi* in Cuba, this bird does not appear to be found far away from mangrove swamps.

58. **Dendroica dominica** (*Linn.*). YELLOW-THROATED WARBLER.— Two taken in the pines on Abaco, July 22, would seem to indicate that this species is resident.

59. **Dendroica pityophila bahamensis** *Cory*. BAHAMA WARBLER.— A young specimen was shot by Mr. Derickson in the pines on Abaco, July 22. As the young plumage has never been described, a description is given.

Above hair brown; breast and flanks lighter hair brown; throat, center of belly, and under tail-coverts whitish; tail blackish, the inner web of the outer feather with an oblique white spot, this spot barely indicated on the next; feathers of the wing blackish, slightly edged with hair brown; the greater and lesser coverts slightly tipped with drab.

60. **Dendroica vigorsii achrustera** (*Bangs*). NASSAU PINE WARBLER. — Not uncommon in the pines on New Providence.

61. **Dendroica vigorsii abacoensis** *Ridgway*. ABACO PINE WARBLER. — One taken in the pines on Abaco, July 22.

62. **Dendroica discolor** (*Vieillot*). PRAIRIE WARBLER. — One specimen in immature fall plumage taken on New Providence, July 20, was probably bred on the island.

63. **Geothlypis maynardi** *Bangs*. MAYNARD'S YELLOW-THROAT. — A male taken on New Providence, June 18, has the back and top of head much more yellowish olive-green than any specimen of *maynardi* available for comparison, but is nearer this species than *flavida*. It is also of a brighter yellow below with an apparently heavier bill than specimens of *maynardi* in the collection.

Yellow-throats are apparently rare on New Providence and only three or four were heard during our stay of a little over a week.

64. **Geothlypis tanneri** *Ridgway*. TANNER'S YELLOW-THROAT. — A male was taken amongst the pines on Abaco, July 22.

65. **Geothlypis incompta** *Ridgway.* LESSER ABACO YELLOW-THROAT. — A male taken on Abaco, July 22, in worn plumage, while paler both above and below than any specimen of *incompta* available for comparison comes nearer to this than it does to *tanneri*.

During the four hours we spent on Abaco, we took two male yellow-throats and saw a female we did not succeed in shooting. This would indicate that they are not uncommon on the island. Both this and the above species were taken in the same character of country, namely heavy pine forest with *Pteris* fern brake beneath. The specimen of *tanneri* taken was singing a song somewhat resembling the well-known notes of *G. trichas* but probably with more force. It was easily 'squeaked up,' coming almost too close to shoot even with a light load in an insertion barrel, but backing off is out of the question in a rocky fern brake full of holes and crevices.

66. **Cœreba bahamensis** (*Reich.*). BAHAMA BANANAQUIT. — Abundant on New Providence, Andros, Eleuthera, Cat Island, Rum Cay, Watlings Island, Long Island, and Abaco. One of the first birds to respond to squeaking. They seemed to be very industrious in searching the trees, presumably for insects, crawling up and down like *Mniotilta varia*; indeed, their actions are very warbler-like. Their song is a weak little warbler-like trill. Several dome-shaped nests that we took to belong to this species were found but none contained eggs. Young in all stages of plumage were seen, indicating that the nesting season for them was apparently over. The skin at the angle of the commissure is coral pink in life.

67. **Agelaius phœniceus bryanti** *Ridgway.* BAHAMA REDWING. — A few pairs were found around Lake Kilarney and a small mangrove swamp on the western end of New Providence. Two nests, like the nests of the common Redwing, were found in the latter situation, June 24. The nests were in small mangrove bushes, about four feet from the ground, and contained three young and three eggs respectively. The eggs do not differ materially from eggs of *A. phœniceus* and measure 23 by 17.5, 23.2 by 17.7, and 22.2 by 17 mm. A few pairs were seen on Grassy Creek, Andros, and a few pairs around a small mangrove swamp on Abaco.

Our New Providence specimens seem to be slightly darker than our Abaco (the type locality of *bryanti*) birds, but our series from either island is too small to be of any importance.

68. **Spindalis zena** (*Linn.*). BLACK-BACKED SPINDALIS. Very common on New Providence and Long Island. They could often be seen on New Providence floating over the low scrubby growth and singing on the wing, though their song is generally delivered whilst perched, and I suppose the aërial evolution is only resorted to when their nuptial passions can no longer be restrained. The song is a weak little trill and does not take high rank as a musical performance. I came upon four or five of these birds one day feeding greedily upon the ripe fruit of the sapodilla.

69. **Spindalis zena townsendi** *Ridgway.* ABACO SPINDALIS.— This well-marked race was common amongst the pines on Abaco, and though we shot a number, only succeeded in recovering two that would do for specimens.

70. **Pyrrhulagra violacea** (*Linn.*). BAHAMA BULLFINCH.— Very common on New Providence, but seen in far less numbers on Eleuthera, Cat Island, and Long Island. Keeps to the thick scrub and is rarely seen, but is one of the first birds to respond to squeaking.

71. **Tiaris bicolor** (*Linn.*). BAHAMA GRASSQUIT.— Abundant on New Providence, Eleuthera, Cat Island, Watlings Island, Long Island, and Abaco. It has a sweet little weak song that somewhat reminded me of the Field Sparrow's. This song is generally delivered from a low bush but occasionally from the tops of the taller trees. It frequents the scrubby growth, keeping near the ground, as a rule.

ARE THE HABITS OF BIRDS CHANGING?

BY GEO. F. BRENINGER.

CHANGES in the habits of birds are largely due to conditions; conditions change with the progress of time. A century ago there were many large areas of timbered lands; these are being gradually cut away, until to-day there are but few large timbered tracts within the boundaries of the United States, and these principally in the West. With the felling of the trees and the clearing away of the smaller growths, follows the plowman; seed is sown, and changes take place, which attract some species and drive others away. The nesting habits in many species change.

During the past twenty-five years I have seen changes in nesting sites in many species, notably with Lucy's Warbler (*Helminthophila luciæ*). Normally this warbler nests in natural cavities in the trunks of trees. My observations lead me to believe the mesquite to be the kind of tree selected, though in a measure this is again due to conditions. In the land where Lucy's Warbler lives mesquite is the principal tree. Cottonwood is also

used, but after all, its the 'hole' that is selected and not the tree, be it mesquite, willow or a fence post. I have seen probably a hundred instances of the nesting of this warbler. I find that the majority were in natural cavities in dead parts of living trees — woodpecker cavities in trees and fence posts. The next greatest number place their nests behind pieces of loose bark. In later years we find them appropriating old and abandoned nests of the Verdin (*Auriparus flaviceps*) and other species. In one instance I saw a thrasher's nest used. The warbler had built its nest within the cavity of the larger nest. In still another instance a warbler had built its nest in a hole in a bank of earth. The height of surprise was reached in an open nest built among the smaller limbs of a mesquite tree. The material used in its construction was of mesquite leaves and stems lined with horse-hair, the same as is used in a cavity.

These unusual nesting sites were mostly noted in the vicinity of Tucson, Arizona, where the larger trees had been cut away, and with them all the holes used in former years, and in consequence thereof certain species of birds are forced to adopt other nesting sites and methods of nest building.

Another instance is that of the Ash-throated Flycatcher (*Myiarchus mexicanus magister*). Not capable of cutting its own nesting cavity, it preëmpts those cut by other species, chiefly woodpeckers. With the destruction of the larger trees, *Myiarchus* is forced to look elsewhere for a location. Unusual among nesting sites of this species is one in a tree yucca, the hair-lined nest being built among the hanging leaves close to the trunk, where the sitting bird could look out upon the world through the lattice work of dry leaves. Another instance is where a pair made their home in a barn, the eggs being deposited in a nest of hair built on a cross beam on the side of the barn. Entrance was gained through a hole cut by a Flicker.

Every one is familiar with the swallow's nest beneath the eaves of the house, both of Cliff Swallows (*Petrochelidon lunifrons*) and Barn Swallows (*Hirundo erythrogastra*), and to-day few people can tell of seeing nests of Barn Swallows in any other place than under the protection of some of man's structures. In the case of the Cliff Swallow, many colonies still cling to the primitive method

of placing the nest on some overhanging rock or bank of clay. In sections of country where houses are few or entirely absent, both species nest on the face of a rock. Such places are rare, for wherever there is inducement enough to offer a home for the swallows, there is enough for man. With the advent of man, a house follows, and the swallows are not long in finding it.

Down in Mexico I saw both extremes, proximity to man, and where man was absent. In the ancient town of Tuxpan, State of Jalisco, I saw numerous instances of Barn Swallows nesting in the living rooms. In the unsettled portions of the State of Chiahuahua, a hundred miles back from the railroad on one of the large 'haciendos'— a region devoid of the time-honored 'adobe'— Barn Swallows still nested on the rocks.

Throughout the eastern part of the United States Flickers (*Colaptes auratus*) frequently take up their abode within buildings, entering by way of holes cut by themselves. In the west the Red-shafted Flicker (*Colaptes cafer collaris*) has taken up the same habit, only to a less extent, due to the less pressing need. How conspicuous are the woodpecker holes in telegraph poles in some sections of the country! Here a little investigation will soon reveal that the large trees have been removed, and that the poles offer a better nesting site than anything left standing in the woods. Along the railroad between Benson and Bisbee, Arizona, the telegraph poles and fence posts show evidence of the work of woodpeckers, all by the Texan Woodpecker. Throughout this region trees are few, and the woodpeckers are forced to use anything that is dead and large enough to permit of a nesting cavity being excavated in it. Dead stalks of the century plant are often used. About Phoenix, Arizona, this woodpecker is common, timber suited to their needs is still in abundance, and the poles along the railroads and elsewhere are untouched. In some parts of Mexico the work of woodpeckers on telegraph poles has reached the stage of a nuisance, and a source of much outlay of money to keep the line in repair. Over a piece of road running between San Luis Potosi and Tampico the nuisance has become so great that the management threatened to dip the poles in a solution of creosote.

House Finches (*Carpodacus mexicanus frontalis*) readily accept any change offered, in this being a close second to the English

Sparrow (*Passer domesticus*). On San Clemente Island, Cal., they make free use of the sheep sheds. In others parts of California nests are commonly placed in the flowering vines over the doorway or in some choice flowering shrub, the birds amassing an unsightly bunch of rags, twine and hair. In Phoenix, Ariz., they are persistent in using the arc lights in various parts of the city. This species adapts itself admirably to changed conditions, adopting these by choice, not by need.

A THIRD TRIP TO THE HIGH SIERRAS.

BY MILTON S. RAY.

My brother, William R. Ray, and I, with our double team and camping rig, which has seen a thousand miles of service, departed at noon June 6, 1903, on the steamer which takes one as far as Eagle Point on the Sacramento River. The wealth of lower zone bird life here, in the lowlands along the river, must be seen to be appreciated, and the morning chorus from the willow thickets and marshy meadows is a revelation, imparting to the region a certain attractiveness which it lacks in most other respects.

June 7.— We arrived at Eagle Point at 5 o'clock A. M. and started immediately on going ashore. The weather had been extremely warm and the temperature was 106° in the shade at 8 o'clock this morning. We followed the level valley road through Sacramento to Folsom, which lies in the foothills on the American River, and halted five miles east of the latter town.

June 8.— In order to avoid the scorching heat we resumed our journey in the early hours this morning and traveled by the light of a full moon. Several miles from the starting place we discovered what appeared, in the uncertain light, to be a coiled rattlesnake. On nearer approach, however, the object took flight disclosing two small young, and proved to be a Dusky Poor-will

(*Phalænoptilus nuttalli californicus*). The nearly full-fledged young were on the bare ground and only two feet from the road over which much teaming is done. Between Folsom and Placerville we found the Yellow-billed Magpie (*Pica nuttalli*) very abundant and noticed many nests, all placed near the top of tall oak trees. Eleven o'clock brought us to Placerville and ended the day's travel.

June 9.— To-day we journeyed as far as Slippery Ford, on the headwaters of the American River. The drive was through a continuous woodland, uniform in character and beauty, and quite unlike the stern, rocky, precipitous country of the higher altitudes.

June 10.— Our experience to-day will be long remembered. Thinking that even if snow should cover the road, we could reach Forni's, at the base of Pyramid Peak, we left the main highway at Georgetown Junction at noon and began the ascent by a steep road used only by dairymen in the late summer. Many fallen trees, the work of winter storms, lay across the road, and much accumulated brush impeded our progress, which even at the best was slow. We felt rewarded for our efforts, however, when we reached the summit, where the willows were only in bud and the grass on the meadows just peeping out. Numberless Chickadees were flitting about, besides various other species of bird life. Our elation was short-lived, however, for a blinding rain-storm, ushered in with terrific thunder and lightning, soon made dismal the merry sun-lit woods. Indeed, what is more cheerless than a cold, dripping forest? After a while the rain ceased and we proceeded on our way, but soon the deep snow made the road impassable, and we were compelled to unharness the horses, packing only the necessities on their backs, in order to continue. In places small streams had undermined the snow, in which the horses would sink deep, shifting the pack in their efforts to right themselves. Half a mile of this disheartened us and we turned back; but when we reached our wagon we found we were unable to turn it on the narrow roadbed. Not having eaten since breakfast, and being wet and cold, we were indeed in a sorry plight. After unloading the wagon we finally succeeded, inch by inch, in turning it around, and a mad ride down the grade brought us again to Georgetown Junction; and a few miles further on we reached Echo, where we built a

roaring camp fire and dried our outfit. Echo lies at the foot of the high granite cliffs of the summit, a vast area of virgin forest, full of surprises for the ornithologist.

June 11.— After due deliberation, this morning, we decided to press on to Lake Tahoe, and so began to climb up the winding road that leads to Phillip's Station, which came in sight at noon. We flushed a Sooty Grouse (*Dendragapus obscurus sierræ*) along the road, and in a pine stump, ten feet up, I found a nest of the Red-shafted Flicker (*Colaptes cafer collaris*) with six nearly fresh eggs. Near camp I also found a nest of the Sierra Hermit Thrush (*Hylocichla aonalaschkæ sequoiensis*) in a tamarack, six feet up, with four fresh eggs. The nest is $3\frac{1}{2}$ inches across by 2 inches deep, composed externally of moss, grass and weed stems and lined with fine dry grass and leaves.

June 12.— This morning I located a nest of the Cabanis Woodpecker (*Dryobates villosus hyloscopus*) in a tamarack stump, six feet up. Fine bits of wood, dislodged in excavating, were the only lining for the four eggs, in which incubation had begun. One of the parents was collected with this set. I also discovered to-day two more nests of the Hermit Thrush; one, in a small tamarack, held two fresh eggs, and the other, also in a tamarack, eight feet up, held three fresh eggs. The latter was at the head of a narrow cañon. Near by a brook of snow water flowed past, and below the nest the snow was three feet deep. The nest itself was a very beautiful one, being outwardly made of a very bright yellowish green moss which clings to the bark of the older trees in these high altitudes. I closed the day with a find, ten feet up, in a small tamarack by the roadside. The compact, well-feathered nest contained five richly marked and nearly fresh eggs, and on the return of the anxious, but gayly attired owners, I entered *Dendroica auduboni* in my note-book.

While on the summit, where both the Sierra Hermit Thrush (*Hylocichla aonalaschkæ sequoiensis*) and the Russet-backed Thrush (*Hylocichla ustulata ustulata*) occur, although the latter but sparingly, I had the first opportunity for a comparison of their songs. That of the Hermit Thrush is clear and ringing, like a merry brook of snow-water in the open; that of the Russet-back, indistinct yet sweet, like some whispering stream overhung

with heavy foliage. Almost everyone remarks the song of the Hermit, — gay, loud and far reaching; only an ornithologist, perhaps, would hear that of the Russet-back, — sad, subdued and mysterious. While the song of the Russet-back is far less loud than that of its rival yet, being more ventriloquial, it can be heard equally as far away. In the fading light, when most other birds are silent, these two peerless singers hold forth, and the effect is further enhanced by the beauty of the Sierran woodland and the stillness of the twilight hour.

During my stay at Phillip's Station I made the following list of species, which refers to this trip only. The summit here is not very extensive, being walled to the north and south by the higher mountain ridges. The elevation, 7500 feet, is about the same as that of the great Pyramid Peak Plateau.

List of Species.

1. **Oreortyx pictus plumiferus.** MOUNTAIN PARTRIDGE. — Common, breeding, but no nests were located.

2. **Dendragapus obscurus sierræ.** SIERRA GROUSE. — One seen, as noted above, and a few heard.

3. **Accipiter velox rufilatus.** WESTERN SHARP-SHINNED HAWK. — Seen several times.

4. **Dryobates villosus hyloscopus.** CABANIS WOODPECKER. — Rather abundant; one nest found, as previously stated.

5. **Colaptes cafer collaris.** RED-SHAFTED FLICKER. — Rather abundant; one nest found, as already noted.

6. **Selasphorus rufus.** RUFOUS HUMMINGBIRD. — A few seen.

7. **Nuttallornis borealis.** OLIVE-SIDED FLYCATCHER. — More often heard than seen.

8. **Contopus richardsoni richardsoni.** WESTERN WOOD PEWEE. — Rather common.

9. **Cyanocitta stelleri frontalis.** BLUE-FRONTED JAY. — Very scarce this year, for some reason.

10. **Carpodacus cassini.** CASSIN PURPLE FINCH. — Common.

11. **Zonotrichia leucophrys leucophrys.** WHITE-CROWNED SPARROW. — Common; one newly built nest found on the ground in a meadow.

12. **Spizella socialis arizonæ.** WESTERN CHIPPING SPARROW. — Common; just beginning to build; one nest with one egg noted.

13. **Junco hyemalis thurberi.** SIERRA JUNCO. — Common.

14. **Passerella iliaca megarhyncha.** THICK-BILLED SPARROW. — A few heard on the western edge of the summit.

15. **Piranga ludoviciana.** WESTERN TANAGER.— Abundant.

16. **Dendroica æstiva morcomi.** WESTERN YELLOW WARBLER.

17. **Dendroica auduboni.** AUDUBON WARBLER.

18. **Wilsonia pusilla pileolata.** PILEOLATED WARBLER.— All three species were noted.

19. **Sitta carolinensis aculeata.** SLENDER-BILLED NUTHATCH.

20. **Parus gambeli.** MOUNTAIN CHICKADEE.— Both seen and rather common.

21. **Hylocichla ustulata ustulata.** RUSSET-BACKED THRUSH.— A few heard and fewer seen.

22. **Hylocichla aonalaschkæ sequoiensis.** SIERRA HERMIT THRUSH. — Common; three nests with eggs found, as above noted.

23. **Merula migratoria propinqua.** WESTERN ROBIN.— Common as usual.

June 13.— We left Phillips Station at half past seven this morning and arrived at Bijou, on Lake Tahoe, at one o'clock in the afternoon. On the way, near the Sierra House, four feet up in a small tamarack by the roadside, I found another nest of *Dendroica auduboni.* The four eggs were well along in incubation and save for a few sparse blotches of deep lilac-gray, were unmarked.

June 14.— This morning I found near camp a third nest of the Audubon Warbler (*Dendroica auduboni*), fifteen feet up in a small pine. Incubation had just begun in the four eggs, which were typical. Of all the nests I have found of this warbler in this section none have been over twenty-five feet above the ground and most were under fifteen feet.

I took a ramble to-day along the edge of the marsh at Rowlands. The usual species were in evidence, and I noted the following nests: *Spizella socialis arizonæ*, three eggs, incubation begun; *Actitis macularia*, three eggs, fresh; *Hydrochelidon surinamensis*, nest on floating driftwood, two eggs, partly incubated.

June 15.— Outside of the usual species the only new bird I observed to-day was a Russet-backed Thrush (*Hylocichla ustulata ustulata*). This is the first one I have seen on the floor of the valley.

June 16.— We found a nest of the Mallard (*Anas boschas*) to-day in a wooded swamp. The nest was placed on one of the numerous and regular mounds, the origin of which I do not know, and the seven practically fresh eggs rested on a warm lining of

feathers and down. The nest measured seven inches across and was photographed.

On my first visit to Lake Valley, in 1901, I found, on June 11, on the shore of Rowlands Marsh, in a pine stump, a nest of the Western Bluebird (*Sialia mexicana occidentalis*) with five nearly fresh eggs. The parents being close at hand identification was made sure and as such I listed them in 'The Osprey' (Vol. V, No. 8). On my return to Lake Valley the following year I failed to find this species, which rather puzzled me, and I listed only the Mountain Bluebird (*Sialia arctica*) in my 'Land Birds of Lake Valley' (Auk, Vol. XX, No. 2). This year, however, I solved the puzzle. *Sialia mexicana occidentalis* occurs here but sparingly, being about one third as abundant as *Sialia arctica*, and, strange to say, does not frequent the habitations like the latter but nests deep in the woods, and well up on the mountain sides. It was in the latter location that I found a nest to-day, and intend to return to-morrow to collect the set with parent.

June 17.— I revisited the nest of the Western Bluebird (*Sialia mexicana occidentalis*) to-day and collected the eggs and male parent. The cavity, which was six feet up in a pine stump, was lined with the usual substances, and held six half-incubated eggs. This nest was located on the side of the mountain, about a mile southeast of Edgewood, which lies just over the state-line in Nevada.

On the way back considerable commotion about a nest of the Mountain Bluebird (*Sialia arctica*) in a tall dead tamarack attracted my attention. A chipmunk, intentionally or otherwise, had wandered up the tree trunk in close proximity to the nest-hole, and the angry owners, with bills and claws free, were giving him a grilling, while the chipmunk, needing his claws to cling to the bark, was helpless and forced to make an ignominious retreat. While the depredations on bird-life by this animal are said by some writers to be considerable, I am of the opinion that little harm is done to the bluebird family, who seem well able to protect their homes against this pest.

June 18.— To-day I rowed from Bijou to Rowlands Marsh, about two miles distant. Off shore at the latter place, in cavities in piles projecting above deep water, I found two nests of the

Tree Swallow (*Tachycineta bicolor*), both being warmly lined with feathers. One contained seven eggs well advanced in incubation, while the other held a single but unusually large egg, measuring .84 × .54 inches, which contained two perfectly formed embryos, the first instance of the kind I have found in eggs of wild birds. The specimen is elliptical oval in shape and has the same uneven patched effect noticeable in double-yoked chicken eggs.

I found that with the rowboat I was unable to reach many portions of the marsh that I visited in 1901 and 1902, when I had a light canvas canoe. While nothing particularly new was observed, the marsh with its great tern colonies (*Sterna forsteri* and *Hydrochelidon surinamensis*), the clattering crowds of blackbirds (*Agelaius phœniceus neutralis*, *Xanthocephalus xanthocephalus* and *Euphagus cyanocephalus*) full of nesting troubles, the busy Killdeer, and Spotted Sandpiper (*Ægialitis vocifera* and *Actitis macularia*) practicing their deceptive tactics — running everywhere along the grassy shores except about their nests — and the various waterfowl, present a sight that is ever new and interesting to the naturalist.

June 19–25.— During this week I did little ornithological work except taking a female Nighthawk (*Chordeiles virginianus virginianus*) which contained an egg about to be laid. (This specimen, in the collection of the San Francisco Academy of Sciences, was identified by Mr. Leverett M. Loomis as above.)

June 26.— This morning a friend named Agnew and myself started for Star Lake, which we reached at noon and put in some time successfully fishing. Neither here nor on the way up did I notice anything new in the 'bird line.' Around the log cabin in which we are staying Clark Nutcrackers (*Nucifraga columbiana*) come in droves after the fish heads we have thrown out on the snow, which still lies deep on the ground.

June 27.— All forenoon Agnew was endeavoring to cook some beans, but the high altitude was against us. About noon we set forth, ascending the precipitous mountain side which rises above the southern end of the lake. Chopping into the snow to keep from slipping, clambering over masses of huge boulders, or threading our way along narrow ledges made the climb both laborious and dangerous. On reaching the main backbone of

the ridge a pair of Sharp-shinned Hawks (*Accipiter velox rufilatus*) flew out among the rocky crevices and hovered above, but I could not locate the nest. Following the ridge the ascent of Job's Peak and Job's Sister was made, and lastly Freel's Peak, which lies 10,849 feet above the sea level. We did not see any Leucosticte (*Leucosticte tephrocotis tephrocotis*) about the summits of these peaks, as we expected we would, but, strange to say, we observed near the top of Freel's Peak, and also further down on the broad patches of snow, a small dull-colored bird about the size of a Chipping Sparrow which we were unable to secure or identify.

The view from the top of Freel's Peak was magnificent, Hope Valley lying below on one side and Lake Valley and Lake Tahoe on the opposite. To the east was Nevada, with the fertile Carson Valley and countless ranges of barren mountains fading away in the dim distance. Surrounding Lake Tahoe and running in a northerly and southerly direction extended a never-ending line of snow-capped peaks rising above the heavy timber.

After spending some time running over the records of the Sierra Club, in the brass cylinder on the peak, we started for camp where we arrived about nine o'clock in the evening.

June 28.— We rested to-day from our trip. On the porch of the hotel a pair of Mountain Bluebirds (*Sialia arctica*) have their nest with young, and while we lounge around reading magazines the parents flit back and forth with provender for the juveniles, heedless of our presence.

June 29.— I found a dead male Lazuli Bunting (*Cyanospiza amœna*) near camp to-day.

June 30.— Cascade Lake was visited to-day but nothing appears in my note book. Late to-day, at Rowlands Marsh, a nest of the Cinnamon Teal (*Querquedula cyanoptera*), previously located, was visited and found to contain ten practically fresh eggs. It was well lined with down and placed among reeds on a narrow strip of land with deep water on both sides not far from the road. Further on in the sand bank which runs along the lake shore I noted a nest of the Belted Kingfisher (*Ceryle alcyon*) with large young.

July 1.— We left Bijou this morning for Carson City, Nevada,

which we made late in the afternoon. On the way, at Cave Rock — a tall bluff jutting out into Lake Tahoe — we noticed on a small rocky shelf the nest of a hawk containing young. The remains of several squirrels were observed hanging over the edge of the nest.

July 2.— We left Carson City this morning early. Bird life is abundant where there is any timber or meadowland but almost absent on the broad stretches of sage brush. In passing along Washoe Lake, on the road, we listed thirty different species, which is rather unusual for a drive of only about eight miles. We reached Laughton's Hot Springs, west of Reno, late this afternoon.

July 3.— We unexpectedly disposed of our team and outfit this morning in time to catch the ten o'clock overland train, which landed us in San Francisco at seven o'clock P. M., and brought the trip to a sudden ending.

The following additions were made to the list of the 'Land Birds of Lake Valley' (*cf.* Auk, Vol. XX, No. 2).

110. **Buteo swainsoni**. SWAINSON HAWK.— A stuffed specimen of this species adorns the wall of the Custom House Saloon at Rowlands, where it was shot.

111. **Sialia mexicana occidentalis**. WESTERN BLUEBIRD.— Found breeding at various points in Lake Valley as above noted. While not uncommon, it is not nearly as abundant as *Sialia arctica*.

THE DIRECTION OF FLIGHT IN THE FALL MIGRATION AT NEW HAVEN, CONNECTICUT.

BY LOUIS B. BISHOP, M. D.

How birds find their way in their long journeys between their summer and winter homes is in a large part yet unsettled, and a recent writer on migration appears doubtful as to what degree they guide themselves by natural landmarks, such as coast lines and river valleys (Cooke, 'Some New Facts about the Migration of Birds'). It is in the hope of throwing a little light on this subject that I have brought together a few facts witnessed by myself regarding the flight of birds during the fall migration at New Haven. Mr. Brewster has shown that land birds collect in the fall migration at Point Lepreaux, New Brunswick, on their way south ('Bird Migration,' Memoirs Nutt. Ornith. Club, No. 1), and Dr. Merriam, the same fact regarding the Straits of Mackinac in the northward movement ('Bird Migration at the Straits of Mackinac,' Auk, Vol. II, p. 64); Mr. W. Eagle Clarke has studied the movement of birds past various English lighthouses (Ibis, 1902, p. 246, and 1904, p. 112, etc.), and Mr. Loomis, the migratory movements of water-fowl at Monterey Bay, California ('California Water Birds,' Nos. 1 to 5); but few continued observations of the direction of flight of land birds as they pass a given point some distance from the shore seem to have been placed on record. For several autumns past I have watched in the early morning on a number of different occasions the flight of migrants over a hill near New Haven, and give here in full the result of my observations in 1904, with the most important flights noticed in previous years.

To explain the peculiarity of flight witnessed it is necessary to give some description of the country around New Haven, and especially of the point where this migration was observed. The southern coast line of Connecticut, formed by Long Island Sound, runs nearly east and west, turning toward the southwest near New Haven, and a gap in it, extending about four miles due north and one to two miles broad, constitutes New Haven Harbor. At the northeastern extremity of the harbor the Quinnipiac River,

here about one quarter to one third of a mile in width, extends northward for about a mile. North of this stretch the Quinnipiac Marshes, almost a mile wide, with the river shrunk to modest proportions. West and north of the harbor, where the city is situated, the land is low and level, with few hills of any height within a mile of the coast. At the eastern entrance to the harbor and for about a mile into the interior the land is also low. There begins a series of parallel ridges of trap and sandstone, with valleys between, running north and south and gradually rising, but frequently broken by transverse valleys. Such a ridge, starting from the harbor at about a mile from its mouth and forming the eastern boundary of the Quinnipiac River where it is widest, extends a mile or more further north and broadens into a small tableland, elevated 150 to 250 feet above the surrounding country. This small, elevated plateau slopes gradually toward the east and south, a somewhat lower ridge parallel to the first extending from the southeastern corner, but descends abruptly on the west to almost the harbor level. Where the trap dyke broadens into the tableland a shallow pass exists, which the removal of the trees at this point has emphasized, this absence of trees giving a clear view of approaching migrants. Near here a wooded valley, lying between the two trap ridges, finds its origin. This point is about six and one half miles slightly east of north of the eastern entrance of the harbor, and about four miles from my home in New Haven, and here at the brink of the steep western slope the following notes were obtained.

Sept. 5, 1904.— Clear, cool, and calm; temperature 58° at 9 A. M.; following a day that was hot in the morning and cool in the afternoon with wind changing from north to south, after two hot days. Period of observation, 5 : 10 to 7 : 30 A. M. Many Warblers were heard flying over as I wheeled out and numbers were seen passing all the time I was on the hill, flying north or north-northeast, at 100 to 200 feet from the ground. A few small flocks of Bobolinks passed, flying high, northwest.

Sept. 6, 1904.— Clear and cool with north wind; 54° at 8 A. M. 5 : 15 to 7 : 30 A. M. Few birds seen; no migration.

Sept. 13, 1904.— Cloudy and cool with fresh north-northwest wind; 56° at 8 A. M.; after clear and hot day, following similar weather. 5 : 15 to 8 A. M. A great warbler migration, a constant succession appearing from the south and southwest and flying north and north-northeast, chiefly low

down, and many alighting and then hurrying on through the trees. All seemed to pass within a distance of one hundred yards east from the crest of the hill, as I saw very few further east and still fewer at the base of the hill on the west. This flight was in progress when I arrived and continuing when I left, but the largest number passed between 6 and 6:30. Black-and-white, Northern Parula, Magnolia, Black-throated Green, and Black-poll Warblers, Ovenbirds, Redstarts, Northern Yellow-throats and Wood Pewees were among the species noticed.

Sept. 16, 1904.— Clear, cold and calm; 49° at 8 A. M.; after two cool and showery days with fresh northwest winds. 5:20 to 8 A. M. A few Hawks flew west about 5:30. Warblers appeared at 5:35, and flew from south and south-southwest to north and north-northeast till 6:30; none seen flying at the base of the hill and none further east. A few Flickers appeared between 6 and 7.

Sept. 22, 1904.— Clear and cool with light north wind; 35° at 8 A. M.; after clear and cool day with fresh north-northwest wind, following cloudy, warmer weather. 5:40 to 8:15 A. M. About 20 Hawks passed flying west. A great flight of Flickers occurred between 5:45 and 6:30, these birds appearing chiefly from the south, alighting, and then flying down the hill north: birds in the air constantly, and often a dozen or more sitting in the trees at once. Also a few Phœbes and a number of Warblers flew north and traveled north through the tree-tops.

Oct. 1, 1904.— Clear and cool with light northwest wind; 53° at 8 A. M.; after warm and cloudy day with hard wind changing from south to northwest, following slightly cooler weather. 5:30 to 7:45 A. M. One Sharp-shinned Hawk flew west-by-south at 5:38; a few Warblers flew north at 5:47, and others flew into the tree-tops from the south later; a few Flickers appeared from the south between 5:50 and 6:30; and a small flock of Cowbirds flew south high in the air, probably from their roost in the Quinnipiac Marshes.

Oct. 7, 1904.— Clear and cold with light northwest wind; 35° at 8 A. M.; after a clear and cool but warmer day with fresh northwest wind, following similar weather. 5:40 to 8:30 A. M. A great migration of Warblers, Kinglets, Robins, Sparrows and Towhees, all flying or traveling through the trees and bushes north; a few Marsh and Sharp-shinned Hawks flew west; large flocks of Robins flew north between 5:50 and 7; and about 50 Flickers flew north. The bushes and trees were full of small birds as I climbed the hill, but none were seen or heard flying until 5:50, after which frequent flocks of Juncos, Warblers and Kinglets flew north and others traveled north through the trees and bushes. The road east and a brush-lot were full of White-throated, Song, and Field Sparrows and Towhees which flew before me along the road, none taking the first turn to the south, but many disappearing in the woods to the north, and most of the rest taking the first turning in the road to the north just beyond the woods.

Oct. 14, 1904.— Clear and cool with fresh north wind; 40° at 8 A. M.;

after a colder, cloudy day with fresh northeast wind, following warmer, stormy weather. 6:35 to 8:15 A. M. About 20 Flickers, and small flocks of Robins, Bluebirds, Juncos and Sparrows were seen flying north and others traveling north in the trees and bushes.

Oct. 17, 1904. — Clear, cool and calm; 39° at 8 A. M.; after two similar days. 5:45 to 8:30 A. M. Little migration. Several flocks of Bluebirds flew northwest or west-northwest between 6 and 7:30, high in air; a flock of Blackbirds flew west; Robins arising from the trees flew west and west-northwest; and a few Sparrows and Warblers flew north.

Oct. 22, 1904. — Clear, warm and calm; 53° at 8 A. M; after hard southeast storm the morning before and stationary temperature. 5:55 to 7:45 A. M. No migration to speak of. Frequent straggling flocks of Bluebirds flew west or west-southwest all the morning, high in air; one flock of Robins and one of Cedar Waxwings flew west; and many Tree Swallows flew high, south, from 6:10 to 7:20. probably from the roost in Quinnipiac Marshes, all the later ones veering to the southwest and some to the west as they passed over-head, turning while I watched them.

Oct. 28, 1904. — Clear, cold and calm; 27° at 8 A. M.; after a rather windy, warm day, following still warmer weather, 6 to 7:45 A. M. Several flocks of Bluebirds flew west, high, between 6 and 6:30; a few small birds, chiefly Juncos, flew north at 6:20; and numbers of Robins flew low north and northwest from 6:30 to 7:30, many stopping.

In 1898 the early morning hours of Sept. 28, were spent at this spot; in 1900, the same hours on Sept. 19 and 20 and Oct. 11; in 1901, on Sept. 26, and Oct. 1, 4, 7, 11, 16, 25, and 30; in 1902, on Sept. 6, 11, 15, 18, 23, and 30, and Oct. 2, and 10; and in 1903, on Aug. 14, Sept. 4, 19, 21, 29 and 30, and Oct. 5, 14, 20 and 30; and the same general direction and manner of migration was observed. Of these dates, I give only the most interesting flights noticed.

Sept. 28, 1898. — Clear and warm; 58° at 8 A. M.; after a cool night and a rather cool, quite windy day. 6 to 7 A. M. About 15 Hawks, between 200 and 300 Flickers, and many flocks of Blue Jays, Tree Swallows, Robins, Bluebirds, Sparrows and Warblers appeared from the east and southeast and flew west and northwest.

Sept. 19, 1900. — Clear and cold, with light north wind; 46° at 4 A. M.; after clear, cool and windy day, following warmer weather. 5:20 to 7:30 A. M. Two Cooper's Hawks and 21 small hawks, chiefly Sharp-shinned, passed between 5:20 and 5:35, all flying high and swiftly west. About 6:30, 15 to 30 Flickers passed. All the morning Warblers and other small birds passed incessantly, appearing from the south and flying low, often from tree to tree, due north and down the hill.

Oct. 11, 1900. — Cool and clear, after two days of cold storm, following a week of hot weather. 5 : 50 to 7 A. M. About 15 Hawks passed over, flying west, and many small birds flew north.

Oct. 25, 1901. — Clear and cold with hard frost, after clear, cool and windy day, following warm weather. 6 to 8 A. M. Large flocks of Robins and Bluebirds flew north.

Sept. 15, 1902. Clear and cold; 49° at 8 A. M.; after clear and cool day, following warm weather. 5 : 30 to 7 : 30 A. M. A large migration of Warblers, all appearing from the southeast and flying northwest; very few stopping.

Oct. 2, 1902. — Clear and warm; 60° at 8 A. M.; after warm and occasionally stormy weather for a week. 5 : 45 to 7 : 30 A. M. Large flocks of Blue Jays appeared from the northeast and flew southwest, and a few Flickers appeared from the south and flew north.

Sept. 19, 1903. — Clear and cold, with moderate northeast wind; 51° at 8 A. M.; after a clear and cool day with fresh north wind, following a sudden drop in temperature. 5 : 25 to 8 : 15 A. M. A large migration of Warblers appeared from the south a little before 6, and lasted until 7, the birds coming from the south in twos and threes and dropping into the trees on the hill and flying north from tree to tree, and others continuing north without stopping; chiefly Black-poll and Black-throated Green. A number of Flickers and a few Sharp-shinned Hawks flew over from southeast to northwest between 6 : 30 and 7.

Sept. 29, 1903. — Clear and cold, with northwest wind; 44° at 8 A. M.; after a clear, cool and windy day, following warmer weather. 5 : 30 to 8 : 30 A. M. A great migration of Warblers, Kinglets, Sparrows, etc., flying north. Many Flickers and Blue Jays flew west or northwest from east or southeast.

Sept. 30, 1903. — Clear, calm and cold, with heavy frost, and fog in the valleys. 5 : 30 to 8 : 30 A. M. Many Flickers and Jays migrating; the former flying northwest and the latter, west and higher in the air.

Oct. 14, 1903. — Clear, calm and slightly cooler; 50° at 8 A. M.; after a clearing, warm day, following several days of northeast storm, but with little change in temperature. 5 : 40 to 8 A. M. No birds seen flying until 6 A. M. when a few Bluebirds flew high west, and 8 to 12 Sharp-shinned Hawks also flew west. Somewhat later a number of Juncos appeared from the south and stopped; and from 6 : 30 to 7 : 30 large numbers of Robins appeared from the south-southwest and stopped.

In the spring I have seen no flight of importance at this place, although I have been there frequently shortly after sunrise, and this is what might be expected from the surrounding country.

Although I have spent the same hours on many mornings each fall at other places near New Haven I have seen comparatively

few migrants in flight, and this is especially true of the mornings spent on a sandspit that bounds the western entrance to New Haven harbor, and where birds flying across the harbor would first reach land. At Guilford — about sixteen miles east of New Haven — large numbers of migrants, closely following the coast-line, flew over me on Oct. 18, 1884, Oct. 24, 1892, and Aug. 2, 1894.

The temperature conditions governing migration were what was to be expected — that the greatest movement was on a cool morning following a sudden drop of temperature on the previous day; that there was no movement when the temperature was rising, and but little when it remained stationary; and that a fresh north wind did not seem to check the birds in their flight. Rather strangely it is under the same conditions alone that I have noticed here a bird-wave of any magnitude of transient visitors in the spring; for, although our summer residents appear after warm and southerly winds, those bound to more northern homes seem to stop only when a cold north wind bars the way.

To me among the interesting things shown by these mornings on the hill were, first, that these birds did not migrate past this point all night, the chief flight occurring between a quarter of an hour before sunrise and a half hour after; for although I might have heard a number passing the evening before, all was almost invariably silent as I bicycled the three and a half miles in the early dawn, and silent except for chirps from the trees and bushes as I climbed the hill. Usually I had to wait some time before the first migrants appeared, Crows being the first birds to begin their day's wanderings, and Hawks the first to pass in migration.

Another point was the manner of flight, Cedar Waxwings, Bobolinks, and Blackbirds being practically the only species to travel in compact flocks; the others moving in straggling companies, as Robins, Bluebirds, Jays, Warblers, Sparrows, Kinglets, and occasionally Flickers, or singly, as Hawks, Flycatchers, and usually Flickers.

As regards the height from the ground: Hawks, Jays, Bobolinks, Blackbirds, Swallows and Bluebirds usually flew several hundred yards in the air, and the others, seldom more than a gunshot from the ground. This last fact probably explains the directions of

flight. Long Island Sound must have been distinctly visible from the greater elevation, and from the lower only the Quinnipiac River and Marshes, and possibly New Haven harbor, and all at the greater height were flying west, and those at the lower, north. Interesting in this connection was the change in direction of flight from south to west observed in the Tree Swallows on Oct. 22, 1904, as the reed-beds on the Quinnipiac Marshes, where they had probably spent the previous night, are almost directly north, and the Sound would not have been visible until they reached the height of the hill.

To my mind the only explanation of the direction of flight so invariably noticed is that the birds flying west were guiding themselves by the coast line, and that those flying north, which includes most of the smaller species, had been deflected from their course by New Haven harbor. This they must have seen while flying west near the coast at a low elevation, turned north to avoid it, and followed up the valley east of the trap ridge, which led them to my post of observation.

SUMMER BIRDS OF MOUNT PINOS, CALIFORNIA.

BY JOSEPH GRINNELL.

THE western portion of Ventura County, southern California, is occupied by an extensive mass of mountains fairly well marked off from other systems by intervening low divides. This mountain mass consists of irregularly arranged peaks and ridges interspersed with elevated valleys. Several of the latter are of large enough extent to warrant farming operations in wet years, but the sparse population is mainly centered around the Borax Mines. The highest peak of the group, Mount Pinos, is 8826 feet above sea level, according to the topographic map of the region recently issued by the U. S. Geological Survey. This peak, or rather, ridge, rises from a plateau of surrounding valleys themselves 5000 to 6000 feet in elevation, so that from wherever viewed, it does

not distinguish itself by conspicuous height. Mount Pinos is nearest the northern edge of this mountain system; in fact, the boundary line between Ventura and Kern Counties passes east and west over the summit.

From the summit an impressive view is obtainable interruptedly between the uneven saw-teeth of surrounding mountains: — to the north the southern San Joaquin Valley, with the Sierra Nevada range beyond; to the northeast the Tehachapi Mountains rising beyond Tejon Pass; to the eastward broad sand wastes of the Mojave Desert; on the southeast and south, a sea of mountains, the furthermost on the horizon being the Sierra San Gabriel; an extremely precipitous tumble of mountains almost hides the ocean to the southwestward, but here and there bits of silver show its location 35 miles away; and to the west and northwest the low coast ranges fade away in the hazy distance.

On account of the comparative isolation, and especially the position of Mount Pinos in relation to the other mountain systems of California, I had long planned to visit it. For Mount Pinos lies at the convergence of three distinct lines of mountains, the coast range of central California, the Sierra Nevadas, which swing to the westward around the southern end of the San Joaquin Valley, and the Southern Sierras (San Gabriel and San Bernardino ranges). Yet it is constricted from the latter two, which are much higher than the coast range to the northward, by low divides. Faunally, as the material beyond enumerated demonstrates, the affinities of Mount Pinos and vicinity are with the Southern Sierras and San Diegan District, it thus marking the extreme northwestward extension of those faunal areas as far as now known to me.

On June 17, 1904, I left Pasadena by wagon to work over the Mount Pinos region for mammals, birds, and reptiles. Mr. Joseph Dixon, Assistant in Zoölogy at Throop Polytechnic Institute, accompanied me as field assistant. After a few days' loitering in the tree-yucca belt of Antelope Valley (the westward arm of the Mojave Desert), we entered the objective region from the east by the way of Tejon Pass and Cuddy Cañon, following the well-travelled road to the Borax Mines at the east base of Mount Pinos proper. We pulled up as high as we could, making perma-

nent camp at about 6500 feet altitude in Seymour Creek Cañon above the sawmill. This was our base camp while in the region, and from here we were within one to three hours tramp of all parts of the main mountain.

Owing to the excessive aridity of the region, perhaps accounted for by the ocean air-currents being cut off by intervening mountain ranges, the vegetation of the plateau region immediately surrounding Mount Pinos has a decidedly Great Basin aspect. The hills and lower mountain ridges up to about 6000 feet are abundantly clothed with piñon trees (*Pinus monophylla*) which seldom reach a height greater than 35 feet, and average over most of the region not more than 20 feet. The valleys are covered with sage (*Artemisia tridentata* and *Chrysothamnus mohavensis*) which lends a vivid similarity to the real desert. From 6000 feet up, the mountain itself is clothed with a generous growth of timber trees. For an interval up to 7000 feet on south slopes there is considerable brush consisting of a scrubby form of golden oak (*Quercus chrysolepis*), a manzanita (*Arctostaphylos patula*), and *Rhamnus tomentella*. This gives way at about 6000 feet on north slopes and 7000 feet on south slopes to open park-like forest, composed largely of the Jeffrey pine (*Pinus jeffreyi*). A good many yellow pines (*Pinus ponderosa*) occur on the lower slopes, often extending along water courses far down into the piñon belt; also many trees which seem to be variously intermediate in characters between *jeffreyi* and *ponderosa*. In Seymour Cañon are a few sugar pines (*Pinus lambertiana*). And at the summit of the main ridge are several wind-beaten pines identified from cones and staminate flowers by Miss Eastwood as the fox-tail pine (*Pinus aristata*). A few of the same species in more symmetrical growth occur on the north side down among the firs. The steep north slope, from the summit down about 2000 feet, is quite heavily timbered with California white fir (*Abies concolor lowiana*). The upper slopes on the south and east, which are gentle, are not heavily timbered, the groups of Jeffrey pines being interspersed with openings, either bare or brushy. In places above 8000 feet there are extensive low thickets of *Symphoricarpus canescens* Eastwood, and, especially in moist spots, masses of gooseberry (*Ribes cereum* and *R. lacustre*, the latter more particularly on the shaded north side near springs).

In the most exposed places, especially on the west and south sides above 8000 feet, extremely dense mats of a dwarf lilac (*Ceanothus cordulatus*), two feet deep or so, practically prohibit progress through them. Acres of a low composite shrub (*Chrysothamnus tortifolius*) cover the otherwise bare rolling area about the summit.

It is obvious, from a consideration of the most conspicuous plants in conjunction with the animal life studied, that three life zones may be here conveniently recognized: — The Upper Sonoran, characterized by the piñon and sage; the Lower Transition, characterized by the Jeffrey pine; and the Upper Transition, characterized by the white fir. The boundaries are in some places remarkably abrupt; in others a broad interval of intermingling marks the mergence of zones. Some of the birds ranged through two of the zones; and a very few, the Parkman Wren, Lazuli Bunting and Sparrow Hawk, for instance, occurred through all three. And then there were many species which separately characterized each of the zones. Birds typical of Upper Sonoran were: Southern Wren-tit, Pasadena Thrasher, California Bush-tit, San Diego Wren, Brewer Sparrow, Black-chinned Sparrow, Western Gnatcatcher, Swainson Hawk, etc. Birds characteristic of Lower Transition were: Pygmy Nuthatch, Cassin Purple Finch, Audubon Warbler, Black-throated Gray Warbler, Western Chipping Sparrow, Mountain Chickadee, etc. Birds of Upper Transition were: Sierra Grouse, Stephens Fox Sparrow, Green-tailed Towhee, Band-tailed Pigeon, Clark Nutcracker, etc.

In the annotated list which follows, special attention is paid to the zonal distribution of each of the birds enumerated. I have to thank Miss Alice Eastwood, of the California Academy of Sciences, for naming for me the plants mentioned.

1. **Oreortyx pictus plumiferus** (*Gould*). MOUNTAIN PARTRIDGE. — Mountain Quail were plentiful from 5500 feet elevation to the summit, and many broods of young were met with, particularly around the cienegas. Almost every one of the grassy pockets in the north slope of Mount Pinos held its family of quail. On the approach of an intruder these would flutter into the adjacent gooseberry thickets, where they would remain completely lost to observation for the time being.

2. **Lophortyx californicus vallicolus** (*Ridgway*). VALLEY PARTRIDGE.

— Around Seymour Creek Meadow, at about 5500 feet elevation, a few, not more than a dozen, Valley Quail had their rendezvous. The species was seen at only one other place in the region, in a small valley on the southeast flank of Mount Pinos, at nearly 8500 feet. Here among the pines, in company with the prevailing Transition birds, a small band of Valley Quail was met with once, July 11. They were in some Symphoricarpus brush by a little cienega where Mountain Quail were often seen.

3. **Dendragapus obscurus sierræ** *Chapman*. SIERRA GROUSE. — We were told of the frequent capture of grouse in the pines down even as low as the sawmill. But this had been in winter when the snow makes it easier to see them. We saw grouse signs only among the firs on the north side. There in dry loose soil under drooping fir branches were dust-wallows and characteristic feathers. There must have been quite a number around though we actually saw but two, an old female with a half-grown young one. These were perched on fir boughs, and when approached the old bird kept clucking loudly until the youngster took flight, when both would swing down the mountain side into the dense woods out of sight. This constitutes the southernmost record-station for the Sierra Grouse.

4. **Columba fasciata** *Say*. BAND-TAILED PIGEON. — We estimated that fully twenty pairs of pigeons were at home about the summit of Mount Pinos. During the day they were evidently feeding mainly in the Jeffrey pines on the south side of the mountain. For at night just at dusk, they would come flying over the peak, singly and in small parties, alighting down among the dense firs on the north slope. Their deep monotonous *coo'-coo*, *coo'-coo*, *coo'-oo*, or *tuck-oo'*, *tuck-oo'* was a frequent sound at this place, and I have no doubt the birds had nests in the vicinity, though we saw no young. The crop of the single pigeon shot contained nothing but pine seeds.

5. **Zenaidura macroura** (*Linnæus*). MOURNING DOVE. — Doves were frequently seen below 6500 feet, mostly about watering places, which they visited, as usual, in pairs.

6. **Gymnogyps californianus** (*Shaw & Nodder*). CALIFORNIA VULTURE. — The ranchers and stockmen interviewed said that Condors were of common occurrence in the vicinity. I saw a single individual twice flying over the summit of Mount Pinos. The conspicuous white patches on the under side of the wings render this bird the easiest of any of our larger species to identify in full flight at any considerable distance.

7. **Cathartes aura** (*Linnæus*). TURKEY VULTURE. — Just one Turkey Buzzard was seen anywhere in the region. This bird was flying over Seymour meadow, 5500 feet.

8. **Accipiter cooperi** (*Bonaparte*). COOPER HAWK. — Seen but twice, on the mountain sides among the Jeffrey pines.

9. **Buteo borealis calurus** (*Cassin*). WESTERN RED-TAIL. — A single Red-tail was seen circling above Mount Pinos.

10. **Buteo swainsoni** *Bonaparte*. SWAINSON HAWK. — A pair of this

species with two nearly full-grown young lived in the neighborhood of Seymour Creek meadow, 5500 feet. Here they obtained an easy livelihood from the swarms of grasshoppers. Besides these, the stomach of one of the hawks shot, contained a nearly entire chipmunk (*Eutamias merriami*).

11. **Aquila chrysaëtos** (*Linnæus*). GOLDEN EAGLE. — A pair or more were seen repeatedly about the summit of Mount Pinos.

12. **Falco mexicanus** *Schlegel*. PRAIRIE FALCON. — A single adult male specimen of the Prairie Falcon was shot by Dixon on July 4 at about 8000 feet elevation, among the Jeffrey pines. The stomach contained portions of a young Mountain Quail.

13. **Falco sparverius** *Linnæus*. AMERICAN SPARROW HAWK. — Sparrow Hawks were but sparingly represented in the region, and noted only below 8000 feet.

14. **Nyctalops wilsonianus** (*Lesson*). AMERICAN LONG-EARED OWL. — I shot an adult male Long-eared Owl below the Columbus Borax Mine, 5000 feet, in the evening of June 25 Owls were apparently very scarce in the Mount Pinos country. We heard them at night only in one place, Seymour Cañon. The notes were unfamiliar and we concluded they might have emanated from a Spotted Owl.

15. **Dryobates villosus hyloscopus** (*Cabanis*). CABANIS WOODPECKER. — This woodpecker proved to be fairly common all over the mountain above 6000 feet. Full-grown young were noted June 28.

16. **Dryobates nuttalli** (*Gambel*). NUTTALL WOODPECKER. — A juvenile was secured in Seymour Cañon at 6500 feet on July 13; and another individual was heard on a subsequent day among golden oaks further down, at about 5500 feet.

17. **Xenopicus albolarvatus gravirostris** (*Grinnell*). SOUTHERN WHITE-HEADED WOODPECKER. — The White-headed Woodpecker was moderately common among the firs on the north side near the summit, while a few were met with in the Jeffrey pine belt down to 6500 feet. Both adults and young were secured. Dixon saw the species also on Frazier Mountain, 15 miles east of Mount Pinos. The specimens secured average nearest the large-billed race, *gravirostris*. The bills, however, which furnish the main distinguishing character, are slightly smaller than in the case of the San Gabriel birds. This lends evidence of intergradation with *albolarvatus*. Hence I employ the trinomial form of name.

18. **Colaptes cafer collaris** (*Vigors*). RED-SHAFTED FLICKER. — A few flickers, some of them juveniles, were encountered in the Jeffrey pine belt from 6500 feet to the summit.

19. **Phalænoptilus nuttalli californicus** *Ridgway*. DUSKY POOR-WILL. — The mellow notes of the Poor-will were heard regularly morning and evening in Seymour Cañon, 6000–6500 feet; and also one evening on the very summit of Mount Pinos, 8826 feet.

20. **Aëronautes melanoleucus** (*Baird*). WHITE-THROATED SWIFT. — On July 9 several White-throated Swifts were seen flying about the summit of Mount Pinos.

21. **Calypte anna** (*Lesson*). ANNA HUMMINGBIRD. — Several were noted about Seymour Meadow, 5500 feet, July 13–16.

22. **Selasphorus alleni** *Henshaw*. ALLEN HUMMINGBIRD. — Around our camp in Seymour Cañon, 6500 feet, this species was first seen on July 1, and shortly thereafter became notably common. At first only adult males were seen, but within a few days females and juveniles made their appearance. Masses of monkey flowers (*Mimulus langsdorfi* and *cardinalis*), columbines (*Aquilegia* sp.?) and other plants (*Stachys albens*, *Castilleia grinnelli*, etc.) began to burst into bloom during the first week in July about the wet places in the cañon bottoms. And these flower masses were the scenes of many noisy revels among the Allen Hummers, sometimes as many as five of the birds taking part in what looked like a free-for-all fight. I do not believe this species of hummingbird bred anywhere in the region, as they made their appearance after the close of the usual nesting period. It seems probable that they had immigrated from the coast belt to the west and northwest where the species is known to nest.

23. **Stellula calliope** (*Gould*). CALLIOPE HUMMINGBIRD. — This, our most diminutive species of hummingbird, proved to be fairly common on Mount Pinos above 6500 feet, being practically confined to the Jeffrey pine belt. The little meadows between 7500 feet and 8500 feet, grown up to blue flags (*Iris missouriensis*), seemed to be the favorite resort. Only juveniles and adult females were taken. Not a single male Calliope Hummingbird was seen. These had probably emigrated immediately after the nesting season, as is the habit of male hummers generally, leaving the females to bring up the young.

24. **Tyrannus verticalis** *Say*. WESTERN KINGBIRD. — At Seymour Meadow, 5500 feet, a pair of kingbirds had their nest on a lower horizontal branch of a yellow pine, 35 feet up. The young left the nest on July 12, the whole family finding a plentiful food-supply in the hordes of grasshoppers which infested the meadow.

25. **Myiarchus cinerascens cinerascens** (*Lawrence*). ASH-THROATED FLYCATCHER. — A pair was seen in Seymour Cañon, 6000–6500 feet, and one or two more were met with at the meadow, 5500 feet.

26. **Sayornis saya** (*Bonaparte*). SAY PHŒBE. — A family of Say Phœbes, adults and three young, made their appearance June 30 at Seymour Meadow, 5500 feet. They had undoubtedly nested somewhere in the near neighborhood.

27. **Nuttallornis borealis** (*Swainson*). OLIVE-SIDED FLYCATCHER. — The Olive-sided Flycatcher was relatively numerous all over the mountain above 6500 feet. The weird call-notes, so familiar to frequenters of our California sierras, are to me the most impressive of mountain bird-voices.

28. **Contopus richardsoni richardsoni** (*Swainson*). WESTERN WOOD PEWEE. — This species occurred sparingly through the Jeffrey pine belt from 6500 feet to the summit. In Seymour Cañon, a nest was noticed high up on a horizontal pine branch.

29. **Cyanocitta stelleri frontalis** (*Ridgway*). BLUE-FRONTED JAY. — Blue-fronted Jays were moderately common all over the mountain above 6000 feet. Adults and full-grown young, as is usually the case, gathered about our camp in Seymour Cañon, quietly pilfering whatever they took a notion to, including our soap. The specimens secured are typical of the Sierran form, showing no tendency whatever toward *carbonacea* of the coast belt further north.

30. **Aphelocoma californica californica** (*Vigors*). CALIFORNIA JAY. — This jay was a characteristic bird of the piñon belt, below 6000 feet. Above this it was not seen excepting once: In a little valley at nearly 8500 feet, on the southeast exposure of the mountain, several California Jays were noted on July 11.

31. **Nucifraga columbiana** (*Wilson*). CLARK NUTCRACKER. — Adults and full-grown young were abundant about the summit of Mount Pinos, particularly in the fir belt. Below this they were occasionally seen down to 6500 feet, and several were met with even in the piñons at 5500 feet. Nutcrackers were by far the most conspicuous of the mountain birds, both on account of their penetrating voices, and on account of their strikingly contrasted black and white wing-markings, which render the birds in flight plainly seen against most any background.

32. **Sturnella neglecta** *Audubon*. WESTERN MEADOWLARK. — A family of adults and nearly full-fledged young had their headquarters at Seymour Meadow, 5500 feet.

33. **Icterus bullocki** (*Swainson*). BULLOCK ORIOLE. — Several adults and young were noted in the golden oaks and rose thickets about Seymour Meadow, 5500 feet.

34. **Euphagus cyanocephalus** (*Wagler*). BREWER BLACKBIRD. — A small flock was seen several times at Seymour Meadow, 5500 feet, where they were voraciously feeding on grasshoppers.

35. **Carpodacus cassini** *Baird*. CASSIN PURPLE FINCH. — The Cassin Purple Finch was present in numbers all over the mountain, from 6500 feet in Seymour Cañon to the summit. The birds were particularly noticeable in the Jeffrey pine woods at 7000–8000 feet elevation. Here they were to be seen feeding on the ground in pairs or small companies, which would take to the lofty tree-tops when disturbed. Half-fledged young were noted on June 29.

36. **Carpodacus mexicanus frontalis** (*Say*). HOUSE FINCH. — A very few linnets were in constant attendance at Seymour Meadow, 5500 feet. Much to our surprise, on July 11, we encountered a large flock of House Finches, both old and full-grown young, in a small valley on the southeast side of the mountain at nearly 8500 feet. These we concluded had wandered up since the nesting season from a much lower altitude.

37. **Loxia curvirostra bendirei** *Ridgway*. SIERRA CROSSBILL. — I several times thought I saw crossbills among the taller tree-tops. But the close similarity in general appearance and behavior at a distance to the Cassin Purple Finch, rendered identification uncertain in all cases but

one. On the 6th of July I shot an adult pair of crossbills from a pine near the summit of Mount Pinos. The male is in full feather, having nearly the entire body plumage orange-vermilion. The two birds measure in millimeters as follows:— ♂, wing, 97; tail, 65; culmen, 19; depth of bill, 10. ♀, wing, 93; tail, 64; culmen, 19; depth of bill, 10. The gullet of one of the birds contained 13, mostly whole, shelled, Jeffrey pine seeds. This is the southernmost summer record of the crossbill in California. In fact I can find but one other record of its occurrence so far south at any season, that by Daggett of its presence at Pasadena in December, 1898.

38. **Astragalinus psaltria hesperophilus** *Oberholser*. GREEN-BACKED GOLDFINCH.— A single pair was seen for several days at our camp in Seymour Cañon, 6500 feet.

39. **Astragalinus lawrencei** (*Cassin*). LAWRENCE GOLDFINCH.— The Lawrence Goldfinch was fairly common above 6500 feet on Mount Pinos. Adults and full-grown young were frequently seen about springs among the firs on the north slope near the summit. A pair or so were also met with on the lower Seymour Creek at 5500 feet.

40. **Spinus pinus pinus** (*Wilson*). PINE SISKIN.— Siskins were common from the lower edge of the Jeffrey pine belt, say 6000 feet, to the summit. Many daily visited the trickles of water in Seymour Cañon near our base camp. And among the firs on the north side near the summit full-grown young with their parents were of frequent note.

41. **Chondestes grammacus strigatus** (*Swainson*). WESTERN LARK SPARROW.— The Western Lark Sparrow was a fairly common species of the open valleys of the region. There were several pairs about Seymour Creek Meadow, and a nest was found there on June 28, containing three fresh eggs. It was on the ground, sunk into a bunch of grass under a sage bush. A surprise came to us when we later encountered several Lark Sparrows in the open places on the very summit of Mount Pinos, 8800 feet. As with the Sage Sparrows found there at the same time, we concluded that they had wandered up the mountain after nesting at a lower level.

42. **Spizella socialis arizonæ** *Coues*. WESTERN CHIPPING SPARROW.— The Western Chipping Sparrow proved to be a fairly common bird of the pine woods from 6500 feet to the summit. It is not a brush-loving bird, being most often seen on the forest floor, feeding among the fallen needles, or at the edges of the grassy cienegas, often in company with juncos.

43. **Spizella breweri** *Cassin*. BREWER SPARROW.— The Brewer Sparrow was a characteristic species of the sage valleys of the region. It was first met with as we approached Mount Pinos through Cuddy Cañon, at about 4500 feet elevation, and was not seen above 6000 feet in any place. On the sage flat above Seymour Creek Meadow the species was numerous. Full-grown young were taken June 26, and on June 28 several nests were found located from 1½ to 3 feet above the ground in sage bushes

(*Artemisia* and *Chrysothamnus*). One nest contained three eggs and one newly-hatched young, and another held two eggs and one young. Most of the nests were by this time vacant. In structure the nests of the Brewer Sparrow very closely resemble those of the Chipping Sparrow, as might be expected from the close similarity between the birds themselves. It is worthy of remark that in no place in this region did the local ranges of these two species overlap.

44. **Spizella atrogularis** *Cabanis.* BLACK-CHINNED SPARROW.— The Black-chinned Sparrow was also an inhabitant exclusively of the sage belt, along with the Brewer and California Sage Sparrows, but in not nearly so large numbers as the latter two species. In the vicinity of Seymour Creek Meadow, between 5500 and 6000 feet, there were perhaps but half a dozen, as the same individuals were probably seen and heard repeatedly. We were fortunate enough to run across a nest of the Black-chinned Sparrow, June 28. This was a very flimsy affair, lacking the neat internal appearance and general compactness for which the nests of the Chipping Sparrow are notable. It was built among the slanting twigs of a sage bush, 2 feet above the ground, and contained two small young.

45. **Junco hyemalis thurberi** *Anthony.* SIERRA JUNCO.— Juncos were numerous from 7000 feet to the summit, and full-grown young were seen soon after our arrival. The birds showed evident preference for the small springy meadows, especially those on the north side of Mount Pinos, where the steep slopes and dense firs contributed to maintain a cool shade. On the sunny side and at lower altitudes parents and young were to be met with feeding on the ground among bushes, often in company with Chipping Sparrows and Bluebirds. On the north side, below the spring nearest the summit, I found two nests, July 11. These were both discovered while I was setting a line of mouse traps along the little stream, and both were so artfully concealed that the most careful direct search would have failed, had I not almost trodden upon the sitting birds, which thereupon flew out from under my feet. The nests were in each case sunk into the sod, so that the rims were flush with the surrounding surface, and overhung by prickly goose-berry bushes. Each contained three eggs, incubated but slightly.

46. **Amphispiza belli canescens** *Grinnell.* CALIFORNIA SAGE SPARROW. — The California Sage Sparrow was an abundant bird in the valleys of the region, occurring coëxtensively with the sage-brush (*Artemisia tridentata* and *Chrysothamnus mohavensis*). Juveniles were nearly all full-fledged by the last of June. I was surprised to find several bands of full-grown young among the gooseberry bushes (*Ribes cereum*) on the very summits of both Mount Pinos and Sawmill Mountain. These may possibly have been reared there, but I think more probably had recently wandered up from the sage slopes which in places stretch up to fully 6500 feet on the south sides of the mountains. The nine specimens preserved struck me at once as differing from the Bell Sparrow of the coast region

of California. Upon gathering together series of *Amphispizæ*, I became convinced of the advisability of proposing the recognition of a new race represented by the Mount Pinos skins. This was done in 'The Condor' for January, 1905, page 18.

47. **Passerella stephensi** (*Anthony*). STEPHENS FOX SPARROW. — The Stephens Fox Sparrow proved to be fairly numerous on Mount Pinos and its westward spur, Sawmill Mountain, but strictly above 8000 feet. In the relatively rank growth of gooseberry bushes and other vegetation about springs and swales, particularly on the shaded north side among the firs, fox sparrows kept their presence known by frequent repetition of their loud ringing song, to me the most pleasing of mountain bird voices. Thirteen specimens of *Passerella* were secured on Mount Pinos. Two of these were full-grown juveniles taken July 11, and another, a half-grown fledgling, was taken on June 29. The remaining ten adults measure in millimeters as follows: —

No., Coll. J. G.	Sex.	Wing.	Tail.	Culmen.	Bill from Nostril.	Ramus of Lower Mandible from lateral base to tip.	Width of Bill at base of Lower Mandible.
5818	♂	86	93	15	11.7	17	12.7
5897	♂	84	93	14	10.5	15.2	12
5891	♂	85	94	13.7	10.2	15.2	12.9
5896	♂	86	96	15.7	11.5	16.5	12.5
5895	♂	83	90	14	11	15.5	13
5819	♂	86.5	98	16.2	12	17	13
5817	♂	84	93	15.5	11.7	16	12 9
Average	7 ♂ s	85	94	15	11.2	16.1	12.7
5894	♀	78.5	87	14	10.2	16.5	12.7
5816	♀	80.5	89	15	11.5	16.2	12
5892	♀	79	86.5	14.5	11	16	12
Average	3 ♀ s	79.3	87.5	14.5	10.9	16.2	12.2

The above measurements show the fox sparrows from Mount Pinos to be in no respects smaller than those from the San Gabriel and San Bernardino Mountains to the southward. In fact one extreme (No. 5819) has a slightly larger bill than the largest examined from the other localities. The tremendously enlarged bill of *stephensi* is characteristic, and separates it readily from its nearest relative *megarhyncha* of the central Sierra Nevada. Among numerous specimens of both forms, I see no intergradation by way of individual variation; and it is quite certain that there is a broad geographical hiatus between Mount Pinos and the nearest favorable region of the Sierras. Of course it is possible that intermediate examples will be forthcoming from the southern Sierra Nevada when these mountains are explored. But with the present available material, by every criterion (except personal "feeling"!) *stephensi* should

be considered a distinct species with binomial appellation. The present record places a known breeding locality of *stephensi* some seventy miles northwest of its previously northernmost known station, Mount Waterman. And I know of no probable breeding place between, for the fox sparrow is a bird of extreme upper transition and boreal. The only other possibly favorable locality, Frazier Mountain, near Tejon Pass, was visited by Dixon, who went to its summit on July 18, without noting any fox sparrows. Although over 8000 feet high it is too dry and too near the influence of the hot interior plateau. The breeding records so far for the Stephens Fox Sparrow indicate a very spotty range, viz.: — a very limited area on San Jacinto Peak, a rather more extensive region on the San Bernardino Mountains, a very limited tract along the highest ridges of the San Gabriel Mountains, and the very small area on Mount Pinos.

48. **Pipilo maculatus megalonyx** (*Baird*). SPURRED TOWHEE.— Spurred Towhees were observed only below 6500 feet. They were sparingly represented along Seymour Cañon where young were taken near our base camp by June 27.

49. **Oreospiza chlorura** (*Audubon*). GREEN-TAILED TOWHEE.— Green-tailed Towhees were common on Mount Pinos in much the same surroundings as chosen by the Stephens Fox Sparrow; but the former were noted a little lower, down to about 7500 feet on the east side of the mountain. In the clumps of gooseberry, *Ceanothus* and *Symphoricarpus* brush, the Green-tailed Towhees were to be heard and seen plentifully. Full-grown young were taken by July 11. This species was also discovered on Frazier Mountain, 15 miles east of Mount Pinos.

50. **Zamelodia melanocephala capitalis** (*Baird*). BLACK-HEADED GROSBEAK.— Not common; single individuals were met with in several places about the mountain, even on the very summit where one was heard singing violently from a dense fir tree late one evening.

51. **Cyanospiza amœna** (*Say*). LAZULI BUNTING.— At Seymour Creek Meadow, about the thickets of rose-bushes and willows, Lazuli Buntings were notably plentiful. A few were also observed in the cañons further up the mountain; and even about the cienegas as high as 8000 feet, where gooseberry and Symphoricarpus thickets furnished cover, the song of this bird was often to be heard.

52. **Piranga ludoviciana** (*Wilson*). WESTERN TANAGER.— Tanagers were met with chiefly in the cañons among the golden oaks, from 6000 to 6500 feet elevation. One pair was seen in the fir zone on the north slope near the summit.

53. **Progne subis hesperia** *Brewster*. WESTERN MARTIN.— Only noted once: three were seen flying about over the summit of Mount Pinos on June 29.

54. **Petrochelidon lunifrons lunifrons** (*Say*). CLIFF SWALLOW.— A few, mostly birds-of-the-year, were seen flying about in company with Violet-green Swallows over Seymour Meadow, 5500 feet, July 15.

55. **Tachycineta thalassina lepida** (*Mearns*). VIOLET-GREEN SWAL-

LOW.— Violet-green Swallows were abundant all over the mountain, though apparently nesting only in the Jeffrey pine belt. On moonlight nights they twittered almost incessantly all night long, at least whenever we happened to be awake. They would be seen flying about, with the last faint light of evening, and again at dawn. Judging from the directions of their voices, we supposed the swallows to take flight in companies, at intervals as the twittering augmented, fly about overhead awhile, and then settle down for a quiet spell, only to repeat the manœuvre.

56. **Vireo solitarius cassini** (*Xantus*). CASSIN VIREO.— This was the only species of vireo met with in the region. A single pair of the Cassin Vireo was evidently nesting somewhere near our camp at 6500 feet in Seymour Cañon. The male bird sang at morning and evening from a thicket of golden oaks nearby.

57. **Dendroica auduboni auduboni** (*Townsend*). AUDUBON WARBLER. — Audubon Warblers were common in the Jeffrey pine belt from 6500 feet to the summit. They were seen feeding nearly full-fledged young by June 28.

58. **Dendroica nigrescens** (*Townsend*). BLACK-THROATED GRAY WARBLER.— This species was noted from 5500 feet to the summit, but was best represented, numerically, in the golden oaks of the cañons between 6000 and 7000 feet altitude.

59. **Toxostoma redivivum pasadenense** (*Grinnell*). PASADENA THRASHER.— The Pasadena Thrasher was but sparsely represented in the region. It was detected only in the brush belt below 5500 feet down toward Lockwood Valley. The two specimens secured fully warrant the above subspecific determination.

60. **Salpinctes obsoletus obsoletus** (*Say*). ROCK WREN.— We found a family of Rock Wrens, adults and full-grown young, among the boulders on the very summit of Mount Pinos.

61. **Catherpes mexicanus punctulatus** *Ridgway*. DOTTED CAÑON WREN.— A single family of Cañon Wrens in Seymour Creek Cañon, between 6500 and 7000 feet altitude were the only representatives of the species met with.

62. **Thryomanes bewicki charienturus** *Oberholser*. SAN DIEGO WREN. — This form of the Bewick Wren was fairly common in the brush below 6000 feet. The single specimen preserved, an adult female, is in such worn plumage as to preclude positive subspecific identification. But a careful comparison with skins in corresponding plumage leads me to refer it to *charienturus* of the San Diegan district, rather than to *drymœcus* of the San Joaquin-Sacramento region.

63. **Troglodytes aëdon parkmani** (*Audubon*). PARKMAN WREN.— This wren seems to be quite indifferent to altitude. A few were nesting among the white firs on the north side near the summit, while a family of young were found at 5500 feet near the Borax Mine. However, Parkman Wrens did not prove even ordinarily common anywhere about the mountain.

64. **Certhia americana zelotes** (*Osgood*). SIERRA CREEPER.— Creepers were in evidence in moderate numbers among the pines and firs from 7000 feet to the summit. The specimens obtained show the Mount Pinos bird to be unquestionably referable to the Sierran form, *zelotes*, and not to the race, *occidentalis*, which occurs near the coast of southern Monterey County, 175 miles to the northwestward.

65. **Sitta carolinensis aculeata** (*Cassin*). SLENDER-BILLED NUTHATCH. — Above the 6000 foot contour level this nuthatch was locally numerous. In the golden oaks of Seymour Cañon it was about the commonest bird. But elsewhere it was found notably numerous only in a small part of the fir woods on the north slope near the summit.

66. **Sitta pygmæa pygmæa** (*Vigors*). PYGMY NUTHATCH.— Very common in the Jeffrey pine belt, and apparently exclusively confined to it. From 6000 feet to the summit on the south exposure, Pygmy Nuthatches were to be heard or seen almost constantly. Young were plentiful from the date of our arrival.

67. **Bæolophus inornatus inornatus** (*Gambel*). PLAIN TITMOUSE.— Titmouses were occasionally observed in the brush and golden oaks below 6500 feet.

68. **Parus gambeli** *Ridgway*. MOUNTAIN CHICKADEE.— Very common all over the mountain above 6000 feet. Most numerous in the Jeffrey pine belt.

69. **Chamæa fasciata fasciata** (*Gambel*). SOUTHERN WREN-TIT. — A pair were seen in a manzanita thicket in Seymour Cañon at 6500 feet, but none higher. In the brush belt at 5500 feet and lower, the species was sparingly represented. The two adults secured belong to the same race as specimens from the vicinity of Los Angeles.

70. **Psaltriparus minimus minimus** (*Townsend*).—CALIFORNIA BUSH-TIT.— Flocks of bush-tits were frequent in the golden oaks and brush below 6500 feet.

71. **Polioptila cærulea obscura** *Ridgway*. WESTERN GNATCATCHER. — A very few were noted in company with bush-tits at 5500 feet below Seymour Creek Meadow.

72. **Merula migratoria propinqua** (*Ridgway*). WESTERN ROBIN.— Robins were present in relatively small numbers only, and were confined to the upper parts of the mountain, above 8000 feet. Perhaps 20 individuals were seen altogether, some feeding on the ground about moist cienegas, others singing from lofty perches at the tips of pines. No nests or young were discovered; but the robins were surely breeding, for the ovary of a female secured contained a fully formed yolk.

73. **Sialia mexicana occidentalis** (*Townsend*). WESTERN BLUEBIRD.— Bluebirds were abundant all over Mount Pinos, even down into the piñon belt. In favorable spots, such as damp meadows, young and adults were congregated into companies, quiet, but effective in putting great numbers of larval grasshoppers out of sight.

NOTES ON THE BREEDING OF BACHMAN'S WARBLER, *HELMINTHOPHILA BACHMANII* (AUD.), NEAR CHARLESTON, SOUTH CAROLINA, WITH A DESCRIPTION OF THE FIRST PLUMAGE OF THE SPECIES.

BY WILLIAM BREWSTER.

I AM indebted to Mr. Arthur T. Wayne for the privilege of announcing an interesting and important discovery that he has just made, *viz.*, that Bachman's Warbler breeds, at least locally and sparingly, in the coast region of South Carolina. Mr. Wayne's experience may be best given in his own words. Under date of May 14, 1905, he writes as follows: "I have at last found a breeding ground of Bachman's Warbler. Yesterday I took two young in first plumage which the parents were feeding.... I saw two pairs of old birds and heard another adult male singing. These Warblers during the breeding season are very hard to detect. They are extremely active, rarely remaining still for more than a few seconds at a time, and are found in low bottom lands where there is plenty of water.... They must breed only about ten days later than the Yellow-throated Warbler, for the young taken on the 13th could fly with ease."

In a second letter dated May 22, 1905, Mr. Wayne adds: "The locality in which I found the small colony of Bachman's Warblers is distant about fourteen miles from where I live [Mount Pleasant, South Carolina]. The country is very swampy and was originally a rice field, but is now covered with a dense forest of deciduous trees with innumerable patches of low bushes and blackberry brambles. Flanking this forest is an enormous back water (reservoir), from the bottom of which have grown millions of buttonwood bushes. Bachman's Warbler appears to be very partial to these buttonwood bushes which grow in the water. I shot a male on May 14 of last year that kept constantly over the water among the buttonwood bushes. The song period appears to be of very short duration. I visited the place again last Saturday [May 20] and heard but one male singing."

The two young birds taken on the 13th represent both sexes. The male which is now before me may be described as follows:— Top and sides of head and fore part of back faded hair brown with a trace of ashy on the middle of crown; remainder of upper parts dull olive green; wings and tail (which are fully grown) as in the first winter plumage excepting that the greater and middle wing-coverts are rather more broadly tipped with light brown, forming two well-marked wing-bars; chin and throat brownish white tinged with yellow; sides of jugulum smoke gray, its center yellowish; sides of breast gamboge yellow shading into olive on the flanks; middle of breast, with most of abdomen, yellowish white; under tail-coverts ashy white. All the feathers on the under parts which are strongly yellow or olive, and those on the upper parts which are decidedly ashy or greenish, appear to belong to the autumnal plumage or, as it is now called, the first winter plumage, but all the other feathers on the head and body are evidently those of the first plumage.

On comparing this interesting specimen with young in corresponding plumage of *H. chrysoptera*, *H. pinus* and *H. celata lutescens*, I find that it is very unlike any of them; in respect to the general coloring of the upper parts, however, it bears some resemblance to the Nashville Warbler (*H. rubricapilla*) in first plumage.

I have not seen the young female Bachman's Warbler above referred to, but Mr. Wayne writes me that "it differs from the male only in these respects: The yellow on the sides of the breast is very much paler and more restricted and the back is not greenish, but brownish. The white on the tail-feathers is merely indicated on the margins of the inner webs of the tail-feathers."

Both of the young Bachman's Warblers just described were from the same brood and hence of the same age. The young male was being fed by the male parent of the family and the young female by the female parent. Mr. Wayne saw only "these two young" but his "nephew, who was with" him at the time, "is satisfied that he saw at least one or two more." They could all "fly with the greatest ease and their movements were extremely rapid."

It will be remembered that Bachman's Warbler was originally discovered by the ornithologist whose name it bears "a few miles

from Charleston, in South Carolina, in July, 1833,"[1] when "an old female that had to all appearance just reared a brood of young"[2] was taken. "Shortly after, several were seen in the same neighborhood."[1] The season at which these birds were met with was not, of course, sufficiently early to make it at all certain that they were still on or even very near their breeding grounds, for many of our Warblers reach the Dry Tortugas on their southward migration before the middle of July. Mr. Wayne's observations are therefore of much importance as definitely establishing, for the first time, the fact that Bachman's Warbler actually breeds in the low coast region of South Carolina. It would be interesting to know if the species has been a regular summer resident of this region ever since 1833. If so it must be confined to only a very few localities, at least in the neighborhood of Charleston. Were the case otherwise the bird would almost certainly have been found, long before this, by Mr. Wayne, for he is one of the most acute, persistent and thorough of the many excellent field ornithologists whose names have come into prominence in this country within the past quarter of a century, and there are few woods or swamps anywhere near Charleston which he is not accustomed to visit at all seasons.

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[1] J. J. Audubon, Birds of America, II, 1841, 93.

[2] John Bachman, *Ibid.*

NOTES ON CERTAIN BIRDS TAKEN OR SEEN NEAR CHARLESTON, SOUTH CAROLINA.

BY ARTHUR T. WAYNE.

Gavia imber. LOON.—On June 12, 1905, my friend, Dr. Eugene Edmund Murphy, who was making a trip by water from Charleston to my place, saw an *adult* of this bird. On June 19, 1905, while I was coming home from Dewees Island, S. C., I saw a young Loon and watched it for about 30 minutes. It dove with the greatest ease, and would remain under water for a very long time, and nearly every time it appeared, a fish was seen in its bill. This bird could not have been wounded, thus preventing it from migrating. On June 9, 1902, I observed an immature bird of the above species.

Gavia lumme. RED-THROATED LOON.—I shot an example of this boreal loon on April 8, 1905, near Long Island, S. C. The specimen is a young male and is in first winter plumage, changing into nuptial plumage on the sides of throat. This specimen makes the second taken near Charleston. For a record of the first, see 'The Auk,' Vol. VII, January, 1890, p. 88. The first specimen was taken on October 15, 1889, by the writer and is in first winter plumage.

Sterna caspia. CASPIAN TERN.—As far as I am aware there has never been any specific record of the occurrence of this large tern for the coast of South Carolina, it being generally confounded with the Royal Tern (*Sterna maxima*), ever since the time of Audubon and Bachman. The former, in his 'Birds of America,' Vol. VII, p. 78, refers to the Cayenne Tern (= *Sterna maxima*) as breeding in Labrador, which was a mistake, as the tern Audubon found breeding there was the Caspian (*S. caspia*).

On April 24, 1905, a most magnificent adult male, in perfect nuptial plumage, was shot by my nephew, Mr. Ferdinand Gregorie, Jr., at my request. The Caspian Tern is a permanent resident on the South Carolina coast, and it *breeds* in small numbers on 'Bird Bank,' Bulls Bay. On June 19, 1905, I counted upwards of fifty of these terns when I was off Dewees Island, S. C., and

all of them appeared to be moulting on the top of head. This moult usually takes place as early as June 3, that is the first inception.

Mr. Chapman, in his 'Birds of Eastern North America,' states that this tern "apparently does not winter within our limits." I am pleased to say that during the past winter, which was a very severe one, I frequently saw and *heard* this tern during the months of December, January, and February, but after February 18, 1905, they disappeared until March. The notes of this tern are unmistakable, being very guttural, and they bear no resemblance to those of *Sterna maxima*, the latter being pitched in a high key.

Sterna forsteri. FORSTER'S TERN.— In the A. O. U. Check-List for 1895, the range of this tern in winter is given as "southward to Brazil." On January 7, 1905, I shot an example (male) in first winter plumage from a flock of ten or more individuals. The thermometer was far below the freezing point, and a regular blizzard was prevailing. On June 18, 1901, I saw on 'Bird Bank,' Bulls Bay, thousands of these terns, but none of these birds breed on the South Carolina coast, and the mystery is why were they there at the height of the breeding season? All of these terns appeared to be in immature plumage, yet they could not have been barren birds.

Querquedula cyanoptera. CINNAMON TEAL.— April 12, 1904, I shot an adult female of this teal, less than one fourth of a mile from my home. This little duck was in company with a female Blue-winged Teal, in a puddle of water scarcely large enough or deep enough for a duck to float in. Both ducks were taken, but only the Cinnamon Teal was preserved. I well remember a sagacious remark Mr. Brewster made to me, many, many years ago, in reference to the migration of birds, the substance of which was, that during the migration, a person could look for ducks in a basin of water, which is exemplified by the above. The capture of this duck makes the first record for South Carolina, and the second or third for the Atlantic coast.

Porzana noveboracensis. YELLOW RAIL.— On February 3, 1904, while out partridge shooting, I saw my dog pointing in a low, wet piece of open land with a dense growth of short, dead

grass, and being unable to flush anything myself, although I trampled the grass down in every direction, I told her to take it. She at once caught a Yellow Rail, which was the first one I had ever seen alive in South Carolina. I then made her hunt the entire field, and in less than ten minutes she caught two more. These three Yellow Rails were caught near sunset. The next morning, February 4, I again visited the field, in company with my dog, and in less than five minutes she had caught another; while a second specimen was flushed and shot. On February 5 and 8, two more were taken, which make seven in all. On November 19, 1904, my dog again captured another one alive. These rails would not flush, although in every instance I tried my utmost to make them fly, and the only one that did elude the dog by flying, was due to the dog's failure to seize it in a very thick growth. The stomachs of these rails contained the remains of a species of fresh-water snail. One of the specimens taken Feb. 3, ♀ ad., shows melanism in a marked degree.

Porzana jamaicensis. LITTLE BLACK RAIL.— On September 13, 1899, I shot a superb specimen of this rail in a pea field, where the vines were being cut by a reaper. In this same field, which was then planted in oats, I secured on June 10, 1903, a nest and eight eggs, and also captured both parents. The nest was built on high ground, in the oats, and I saw the female *on the nest.* A description of the nest, eggs, and the habits of the birds, has been published by the writer in 'The Warbler,' 2d Series, Vol. I, No. 2, 1905.

Phalaropus lobatus. NORTHERN PHALAROPE.— On the morning of June 3, 1903, my cat brought into the house a specimen of this species, but before I could secure it from her, she had eaten all except a wing, which is all the evidence I had by which to identify the bird. It was evidently an adult female in high plumage, and is the only record I have for the coast of South Carolina, and the capture occurring at so late a date is worthy of being mentioned.

Nuttallornis borealis. OLIVE-SIDED FLYCATCHER.— During the second week of September, 1904, I saw, and positively identified, a bird of this species. I had a record of the *day* of the month, but it has been misplaced. When first seen, the bird was

on the top of a dead willow tree which was in an impenetrable ravine. I was within twenty feet of the tree upon which this Flycatcher was perched, but I would have mutilated the specimen by shooting it from where I was standing, and I could not retreat as I was in a road flanked on both sides by the jungle; therefore as it could not be obtained without being mutilated I determined not to shoot it. There is no question whatever as to the correct determination of this species, as the specimen was positively identified. The bird was seen some days after the occurrence of a very severe storm which raged on the coast of South Carolina, and this record makes the first for the coast region. This species undoubtedly occurs at the proper seasons in the mountainous parts of the State, but it is a *rara avis* on the coast.

Coturniculus henslowii. HENSLOW'S SPARROW.— On January 28, 1905, I took an adult female Henslow's Sparrow, which has *thirteen* rectrices. This makes the second species of the Fringillidæ that I have taken which had thirteen rectrices. The first was Bachman's Finch (*Peucæa æstivalis bachmanii*), female, February 5, 1902. The additional rectrix may prove to be a character peculiar to *females* of the Fringillidæ, and not to the males in certain genera.

Piranga rubra. SUMMER TANAGER.— A very adult male of this species was taken by the writer on May 22, 1903. This specimen has seven normal rectrices, but upon close inspection it was found that the missing tail-feathers were being renewed — not of the color of the adult male, but of the color of the female and young males. That this specimen was retrogressing is plainly shown by the five rectrices which were being moulted. These five feathers are about an inch in length, and the color is yellowish olive-green. It would seem but natural that once this species attained the adult plumage, each moult would be the same. As an illustration of the progressive stage of plumage of the Summer Tanager, I have a specimen (young male) taken May 5, 1903, which is half red and half yellowish green, or in other words mottled. This bird had evidently passed through a post-juvenal moult. There are eleven yellowish olive feathers in the tail, which are very much worn, in fact some are skeletonized, which shows that these were never moulted after the "first plum-

age." The twelfth is the central tail-feather, being freshly moulted, and of a dull red color, as in the adult male.

Helmitheros vermivorus. WORM-EATING WARBLER. — A generic character of the genus *Helmitheros* is the absence of white margins or spots from the rectrices. I have a superb specimen of this Warbler which has two of the outer rectrices on each side very widely margined with pure white; the next rectrix, on each side, is also margined with white, but the area is less. This specimen, No. 4013, closely resembles, in the tail markings, certain species in the genera *Helminthophila* and *Dendroica*, and was shot by the writer on April 16, 1901, and is an adult male.

Helminthophila bachmani. BACHMAN'S WARBLER.— I shot on May 14, 1904, an adult male of this species, and saw the female. It required nearly four hours of constant work in order to secure this restless warbler. On May 13, 1905, I discovered three pairs of these birds and succeeded in taking two young in first plumage, which were being fed by their parent. The young male was being fed by the adult male, and the young female was fed by the adult female! The old birds were not molested. A description, by Mr. Brewster, of the young, which are the first ever taken, will appear in 'The Auk' [see *antea*, pp. 392–394]. Mr. Brewster, visited South Carolina in May, 1883, and also in the spring of 1884 and 1885, especially to search for Bachman's and Swainson's Warblers. and, although we went almost daily, we were unsuccessful in finding the former. For the rediscovery of Bachman's Warbler, by the writer, in South Carolina, see 'The Auk,' Vol. XVIII, July, 1901, pp. 274–275.

Seiurus aurocapillus. OVEN-BIRD. — I secured a fine specimen, ♂ ad., of this bird on January 20, 1904, while out woodcock shooting. This specimen was very fat, which is surprising considering the severe weather which prevailed during December and January. I have frequently seen the Oven-bird in the early part of December, and the capture of this bird in January proves that it winters here sparingly.

Seiurus noveboracensis. WATER-THRUSH. — On January 20, 1887, I shot a female of this bird. On examining the throat I found in it two or three small minnows, which seem to be a very curious diet for an insectivorous bird. This specimen is No.

1614 of my register, and is now in the collection of my friend Mr. William Brewster.

Anthus spragueii. SPRAGUE'S PIPIT.— On the morning of November 1, 1904, I saw and *heard* a Sprague's Pipit *sing* while it was flying high in the heavens. I apparently saw the very spot where it alighted, but although I hunted the ground thoroughly throughout the entire day, I failed to find the bird. For previous records of the capture of this species in South Carolina by the writer, see 'The Auk,' Vol. XI, 1894, p. 80, and Vol. XVIII, 1901, p. 275.

In this connection I wish to place on record a bird of this species which I saw and also heard *sing* while it was flying overhead. This record was made the first week in November, 1892, on the west shore of Lake Tohopekaliga, Osceola County, Florida. I have no doubt that ornithologists who will investigate the fauna of this lake during the winter, will find this species to be a regular winter visitor there.

THE STATUS OF CERTAIN SWAINSONIAN GENERA OF BIRDS.

BY J. A. ALLEN.

IN a recent paper by Mr. Oberholser, entitled 'Notes on the Nomenclature of Certain Genera of Birds' (Smiths. Misc. Coll., Quart. Issue, III, pp. 59–68, May 13, 1905), noticed on a later page of this journal (*postea*, p. 436), several genera proposed by Swainson in 1827 are considered, with the result that Mr. Oberholser concludes that the status hitherto universally conceded to them by ornithologists "must apparently be changed." These genera are *Xiphorhynchus*, *Vermivora*, *Tiaris*, and *Ammodramus*. The first (*Xiphorhynchus*) is transferred to displace *Dendrornis* Eyton, 1852, and the new name *Xiphornis* is proposed for the

group hitherto currently recognized under the name *Xiphorhynchus*, resulting in a change of the generic name of nearly fifty species and subspecies. *Vermivora* is made to replace *Helminthophila*. In respect to *Tiaris*, he follows Dr. Richmond in replacing it with *Euetheia* Reichenbach, 1850, and the group to which *Tiaris* has of late been restricted he renames *Charitospiza*. *Ammodramus* is transferred to the group usually known as *Coturniculus*, and *Ammodramus* is replaced by the new name *Ammospiza* Oberholser, for the *A. maritimus-caudacutus* group.

For such startling revolutions in nomenclature there should be the best of reasons. In determining whether such have been given, the facts in the case may be first stated, as follows: In the year 1827, Swainson published two papers on birds of far-reaching importance in their bearing on nomenclature, and which must be considered together. Unfortunately, through circumstances wholly beyond the control of the author, the paper written last was published first, greatly to the author's regret and disgust, as will presently appear. It is this transposition in the order of publication which gives Mr. Oberholser his excuse for overturning the long-accepted status of the four generic names above-cited.

The first of these two papers, in the order of preparation, is entitled 'On Several Groups and Forms in Ornithology, not hitherto defined.' In this paper 64 genera are either redefined or named and characterized as new, and for 58 of them a type or types (usually a single type) is explicitly designated.

The second paper is entitled 'A Synopsis of the Birds discovered in Mexico by W. Bullock, F. L. S. and H. S., and William Bullock, Jr.,' in which the birds contained in the Bullock Collection were enumerated, the species supposed to be new were described, and the generic names proposed in the first paper, so far as they relate to Mexican birds, were employed.

The first paper was published in the 'Zoölogical Journal,' Vol. III, 1827–1828, and appeared in two parts, the first part (pp. 158–175) in the 'April–July' issue (1827), and the second part (pp. 343–363) in the 'August–November' issue (1827). The exact date of publication is not known, but the two parts may presumably be citable respectively as July, 1827, and November,

1827. The introduction to this paper was dated (*l. c.*, p. 162), "Warwick, 15th Nov. 1826," when, as Swainson himself states later, the manuscript was sent to the editors of the 'Zoölogical Journal' for publication.

During the interval between the transmission of this paper to the 'Zoölogical Journal' and its publication (in the case of the second part, a period of about twelve months), his second paper, on Mexican birds, appeared in the 'Philosophical Magazine' (New Series, Vol. I, 1827), also published in two parts, the first part (pp. 364–369) appearing in the number for May, the second part (pp. 433–442) in the number for June. It is fair to infer that the two parts are respectively citable as appearing in May and June, 1827, or two and six months before the paper on the new genera.

In the introduction to the second paper (*l. c.*, p. 365), Swainson makes the following statement: "The generic definitions will, I hope, shortly appear in another Journal, to which they have been sent with the intention of preceding the publication of this paper, ever since last November. By this unfortunate delay, I am reduced to the unpleasant necessity of referring to a book not yet published, for what the reader should have the immediate power of consulting."

In the case of new species belonging to these genera, fifteen in number, he gave, a reference to the first paper, as follows: "G. [enus] TYRANNULA" (or whatever the name may be), followed by "*Swains. in Zool. Journ. No. 10.*" In eleven of these cases the only species mentioned happened to be the one he had previously designated as the type of the genus.

We have here a case where an author described a number of genera in the most formal way, giving diagnoses of them and specifying their types, but through the earlier publication of a subsequently written paper by the same author,—due to fortuitous circumstances wholly beyond his control, and also greatly to his regret,—some of these genera were first published in association with other species than those he had originally designated as the types. Is it reasonable, or consistent with the best interests of nomenclature, that in such a case an author's plain and deliberate designation of types should be ignored because the genera accidentally became associated, a few weeks earlier, by the

same author, with species not intended as their types? Such a proceeding is contrary to the traditions and usages of systematists in such matters, and quite contrary to the spirit of the *lex prioritatis*, since in determining generic types *where no type is specified*, the author's meaning and intention, if ascertainable are, by common consent, given consideration. How much more then should a strained technicality be waived where an author has distinctly indicated his type species. Does the first association of a specific name with a generic name necessarily determine the species thus mentioned as the type of the genus in question? Ordinarily it most certainly would, but in the present case such a procedure antagonizes and contravenes the purpose of the author in establishing his genus. Viewed from any standpoint of logic, such a proceeding would be in the highest degree absurd.

If no type had been distinctly specified by Swainson, as a part of his diagnosis, for his new genera, it would be necessary to take as the type the first species he associated with them, and in that case his paper on Mexican birds would determine the type for the genera here under special notice. For example, he proposed, among others, the genus *Spermagra* (Zoöl. Journ., III, 1827, p. 346) without indicating a type, but in the paper on Mexican birds he described under this genus the single species *Spermagra erythrocephala*, which thus became of course its type. *Spermagra*, however, is a synonym of *Piranga* Vieillot, 1807, and the species is now recognized as *Piranga erythrocephala* (Swainson).

If some other author had by chance published a paper in which any of Swainson's generic names had been used in connection with a properly designated species, or if Swainson's paper on Mexican birds had been written by some other author and published in advance of Swainson's paper containing his new genera, the case would be different, since under such circumstances the earliest publication would have to be taken. In the apparently unique case of Swainson's two papers, it is far more sensible, and saves serious complications, to accept Swainson's designations of the types of his own generas, as they have heretofore been universally accepted.

There are times, therefore, when the exercise of common sense in the enforcement of even a rigid rule is commendable. The avowed purpose of all rules of nomenclature is to secure stability

in the use of names. It is not for the overthrow of names established by all the safeguards of formality, and as such accepted by all authorities as satisfactory for three-fourths of a century, as in the present instances.

Furthermore, a careful examination of all the facts in the case shows that the conditions in respect to some of the names here particularly under discussion are not quite as represented by Mr. Oberholser in his brief comment on them. In the case of *Xiphorhynchus*, he says: "Although Swainson evidently intended to make *Dendrocolaptes procurvus* Temminck the type of *Xiphorhynchus* [he expressly states that this species is the type], he defeated his purpose by *allowing* the previous publication of *Xiphorhynchus* in combination with the name of a species of *another group*, such publication being quite sufficient to fix the name of a genus. *Since the case is not complicated by the mention of any other species*, *Xiphorhynchus flavigaster* Swainson must be considered the type of *Xiphorhynchus* and this generic term therefore transferred to displace *Dendrornis*."

In the above transcript, I have italicised the points to which I would call attention. It is hardly fair to say Swainson "allowed" this procedure, for he had, under the circumstances, as detailed above, no alternative. The reference to "another group" is also hardly fair, since there was then no "other group" recognized in this connection. At this time many species were grouped by Swainson as congeneric which ten years later he placed in different genera of his own founding.[1] At this time he considered his *X. leucogaster* and *X. flavigaster* as congeneric with *X. procurvus* (Temm.), the species he designated as the type of *Xiphorhynchus*. Hence all the more should regard be paid to his designated types. Again, instead of the case being "not complicated by the mention of any other species," Swainson here described *two* species of *Xiphorhynchus*, *X. leucogaster* and *X. flavigaster*, and Mr. Ober-

[1] In his 1827 paper on Mexican birds, he placed the species of both *Zamelodia* and *Guiraca* all under *Guiraca*; and included under *Agelaus* (= *Agelaius* Vieill.) species of *Agelaius*, *Molothrus* and *Xanthocephalus*; and so on in other cases. This feature of the subject, however, is merely of historic interest, and has, of course, no important bearing on the main questions at issue.

holser has taken the second one in place of the first for *his* type of *Xiphorhynchus*. The first of these species (*leucogaster*) is now referred to *Picolaptes* Lesson, 1831, and the other (*flavigaster*) to *Dendrornis* Eyton, 1852. Thus by the restrictions of other authors, two of Swainson's original species of *Xiphorhynchus* were long since disposed of, *procurvus* of Temminck having been in the mean time conserved, as Swainson originally intended, as the type of *Xiphorhynchus*.

To take the next case, *Vermivora* was evidently the genus to which at this time Swainson would have referred all of the then known species of the present genera *Helminthophila*, *Protonotaria*, *Helinaia* and *Helmitheros*, as they were commonly referred by most authors throughout the next two decades, and he actually thus referred such species of *Helminthophila* as he had occasion to treat in the second volume of the 'Fauna-Boreali-Americana' in 1831. This explains his reference of Wilson's *Sylvia solitaria* to this genus while he designated *Sylvia vermivora* Wilson as its type; and he even goes so far as to credit the name *Vermivora* to Wilson! This under a recently published consensus would necessarily make *Sylvia vermivora* Wilson (= *Motacilla vermivora* Gmelin) the type of *Vermivora*, which thus becomes a pure synonym of *Helmitheros* Rafinesque, 1819, and cannot be revived for the group currently known as *Helminthophila*.

Swainson's *Tiaris* was intended as a comprehensive group, and was so used by various writers up to about 1850, so that it is not strange that Swainson should have included in it a species of *Euetheia*, although he designated a quite different bird (*Fringilla ornata* Wied) as the type. This assignment was respected by all authors till 1902, when Dr. Richmond (Auk, XIX, 1902, p. 87) raised the point that six months before the generic diagnosis was published the name was associated with another species referable to *Euetheia*; to this group he unfortunately proceeded to transfer the name, leaving the original *Tiaris* without a name, which Mr. Oberholser here supplies, calling it *Charitospiza*. Under the circumstances of publication of Swainson's two papers already narrated, this seems, for reasons given above, an unfortunate procedure, which we very much doubt will meet with general acceptance.

Repecting *Ammodramus* Swainson, Mr. Oberholser says: "Since the term .... belongs to *Coturniculus*, as already shown, another name is required for the group to which the former has been applied, and as there is none such available, it may be called *Ammospiza*, ..." Under *Coturniculus*, on a preceding page, he says: "An earlier name for *Coturniculus* Bonaparte is found in *Ammodramus* Swainson, the real type of which is *Ammodramus bimaculatus* — not, as commonly considered, *Fringilla caudacuta* Wilson (= *Oriolus caudacutus* Gmelin). .... The forms of this group will be therefore once more in possession of their former generic designation, ..." This case is, as he says, "precisely similar to those of *Xiphorhynchus* and *Tiaris*, since the first use of *Ammodramus* is in the original description of *Ammodramus bimaculatus*, the western continental form of *Ammodramus savannarum* (Gmelin), antedating by several months the publication of an article wherein *Fringilla caudacuta* Wilson is given as the type."

For many years prior to the publication of the first edition of the A. O. U. Check-List (1886) *Ammodramus* was almost universally restricted to the *A. caudacutus-maritimus* group, *Passerculus* and *Coturniculus* being accorded full generic rank, but in this publication they were reduced to subgenera of *Ammodramus*. This step was not approved outside of the American Ornithologists' Union, and its Committee on Nomenclature, recognizing that an error had been made in the treatment of these groups, in 1903 (Auk, XX, July, 1903, pp. 347–350) raised them to the rank of full genera, with, however, some modification as to their constituent species. It is therefore hardly a fair statement to say, as Mr. Oberholser does, that the substitution of *Ammodramus* for *Coturniculus* returns to the species and subspecies of that group "their former generic designation," when in truth *Ammodramus* in the restricted sense has never pertained to them but to the *A. caudacutus-maritimus* group, and the name was used to cover the *Coturniculus* forms only temporarily by a small part of writers on the group. By many writers *Coturniculus* is merged with *Ammodramus* and treated as merely a synonym of it. Even the A. O. U. Committee has recently transferred all the species formerly placed in *Coturniculus*, except the *savannarum* group, to *Ammodramus*, while the latest authorities who accept

Coturniculus as a genus do it with reservation, and by restricting it to the *savannarum* group. Owing to its doubtful status, if for no other reason, it seems ill-advised to uproot *Ammodramus* from its time-honored associations and transfer it to a group of doubtful status, likely at any time, by almost general consent, to be merged with it, for the sake of establishing a new name on a strained technicality. For, as already said above, the accidental first use of *Ammodramus* in connection with the western form of *savannarum* ought not to outweigh the author's deliberate designation of the type of the genus to which he incidentally and without any incongruous transgression of the real relationship of the forms in question, referred another species. If such lapses from propriety and good judgment as Mr. Oberholser here illustrates should secure partial endorsement, the goal of stability in nomenclature will be more distant than ever, for it does not seem possible that such rulings will meet with general acceptance.

GENERAL NOTES.

A Holbœll's Grebe (*Colymbus holbœlli*) at Englewood, N. J., in June.—This particular individual was present on an artificial ice pond in Englewood for at least three weeks. It was first seen on June 10 and was seen on three consecutive Saturday afternoons. It disappeared between the 24th and 27th. A trolley line runs along the road to the east of the pond, on the other side of which are some golf links. There is another road on the north bank. Two ice storage houses are on the banks, from which ice was taken on several occasions. A breakwater runs along about fifteen feet from the south bank. The grebe was most often in the center of the pond, though continually swimming all over, sometimes getting inside the breakwater. If near the trolley line when a car came along and startled it, it would take to flight and often make a complete circuit of the pond before alighting again. Automobiles startled it more than the trolley cars. The small fish in the pond formed an abundant food supply. It was not in breeding plumage and may have been a bird born last year. The neck was brown, tinged with reddish, and the throat and sides of the head mouse color. —GEORGE E. HIX, *New York City.*

The Yellow-billed Tropic Bird near Phoenix, Arizona. — In April, 1905, a specimen of the Yellow-billed Tropic Bird (*Phaëthon americanus*) was taken alive near Phoenix, Arizona. The bird had dropped in a field from utter exhaustion. The bird, or birds, for there might have been more of them, probably came up by way of the Gulf of California, thence following the Gila River, became bewildered and lost. — GEO. F. BRENINGER, *Phoenix, Arizona.*

Fregata aquila at San Pablo Bay, California. — A specimen of this southern species was shot, June 20, 1905, by P. J. Walsh at Black Point, Marin Co., at the mouth of Petaluma Creek, a tributary of San Pablo Bay. The bird, an immature male, was taken to a local taxidermist where I had the pleasure of examining it. — EDWARD WINSLOW GIFFORD, *California Academy of Sciences, San Francisco, Cal.*

Brant's Nest. — Last April I bought a set of four Brant's (*Branta bernicla leucogastra*) eggs with the nest of Mr. J. S. Warmbath of Washington, D. C. As this is one of the first nests of this bird found, it may be of interest to record it.

Mr. Warmbath accompanied Lieut. Peary's supply ship to Cape Sabine, Ellesmere Land, leaving July, 1899, and returning in October, 1901.

The nest was found, June 17, 1900, on a ledge of rock, 20 feet from the ground among Eider Ducks' and Glaucous Gulls' nests. Both birds were shot.

Mr. Warmbath says: "The Brant's eggs were not incubated, but quite fresh, as I had the pleasure of eating the contents when blown. It was the first taste of any kind of eggs I had had for about twelve months."

The female was shot on a slight elevation above the nest and the male in the water near it. On the same island Eider Ducks and Glaucous Gulls were nesting.

All the islands and the mainland of Buchanan Bay were visited that season, but no other Brant's nest was found. The next year Mr. Warmbath shot several specimens, but found no more eggs.

He has one egg which he secured in Greenland in 1901 and knows of two more secured by Eskimos the same season in Greenland which were turned over to Lieut. Peary.

The eggs are dull creamy white and smaller than the eggs of the Black Brant (*Branta nigricans*). The measurements are as follows: 2.40 inches × 1.60, 2.30 × 1.75, 2.30 × 1.65, 2.40 × 1.70 inches. — JOHN E. THAYER, *Lancaster, Mass.*

A Brood of Albino Spoonbill Ducks (*Spatula clypeata*). — I am much indebted to Mr. Alex. Calder, taxidermist, of Winnipeg, Manitoba, for a most striking photograph of three mounted Spoonbill Ducks, as white as the driven snow. The most interesting feature is that they all belonged to the same brood. Mr. Calder writes under date of June 16, 1905: "They

were pure white with yellow legs and bills and bluish eyes. I shot them near the Saskatchewan River at a point near Edmonton, in June, 1904. These birds were in a flock of their own species and no white parent duck was noticed during the breeding season. When the birds were some weeks old they were seen by Mr. Grant, a ranchman, who owns the pond near which they were hatched. He saw the young white ducks swimming in the pond, and curious to find out what they were he and another man swam into the pond and caught the ducks, which they distinctly saw diving under the water. When they discovered what they were, Mr. Grant released them and the specimens which I got are the result. There were five birds in all, and I succeeded in getting three of them, two having disappeared the day before I got there." The 'American Field' of Chicago has an albino specimen of this duck in its collection. — RUTHVEN DEANE, *Chicago, Ill.*

Rare Ducks near Bridgewater, Mass.— Ornithologists may be interested to know that Mr. Daniel B. Davis on Oct. 22, 1904, at Lake Nippinickett, Bridgewater, Plymouth Co., Mass., shot a Shoveller (*Spatula clypeata*). This bird, together with a number of others of different species, was about to be disposed of in ordinary ways when fortunately Mr. Joseph E. Bassett identified and purchased it.

Other interesting captures at this lake are as follows: Two specimens of the Ring-necked Duck (*Aythya collaris*), by Joseph E. Bassett, Nov. 20, 1895. A King Eider (*Somateria spectabilis*), Oct. 21, 1899, also by Joseph E. Bassett. Two Gadwalls (*Chaulelasmus streperus*), Oct. 18, 1901, by Mr. Harry P. Sturtevant.

With the exception of one of the Ringnecks the skins of the above are in the writer's possession. — ARTHUR C. DYKE, *Bridgewater, Mass.*

Rallus elegans and Ionornis martinica in Massachusetts. — While examining recently the collection of bird skins of Mr. Alfred Hill of Belmont I was interested to find among them a male King Rail (*Rallus elegans*) which was taken Dec. 30, 1896, at Cambridge, and which furnishes the first record of the species for the vicinity. The bird was caught on the ice of a small pond in the Fresh Pond marshes. It was in good plumage but was much emaciated and died in the night following the day of its capture.

I am indebted to Dr. L. C. Jones of Malden for the information that there came into his possession in April, 1902, a fine male Purple Gallinule (*Ionornis martinica*) which was shot at Sandwich by John McArdle, a local gunner. — J. A. FARLEY, *Boston, Mass.*

The Ruff at Camden, Maine. — I wish to record the capture of a female Ruff (*Pavoncella pugnax*) at Camden, Maine, Sept. 14, 1900, by Mr. Sidney Clark. This skin I purchased of Charles K. Worthen, Warsaw, Ill. — JOHN E. THAYER, *Lancaster, Mass.*

The California Partridge (*Callipepla californica*) in Los Angeles County, California. — In the A. O. U. Check-List for 1895, the range of this species is given as: "Coast region of California, south to Monterey." Mr. H. S. Swarth sent me some time ago several specimens of partridges, which he labelled *Callipepla californica vallicola*, and among them there is a typical *californica*. It was taken at San Fernando, Los Angeles Co., Cal., on Oct. 1, 1901, and is No. 2152 of Mr. Swarth's catalogue. This record extends the range of this partridge about 250 miles to the southward.— ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

The Ruff (*Pavoncella pugnax*) in Indiana.— The celebrated Kankakee Marshes at English Lake, Indiana, have yielded records of several specimens of the English Widgeon, but I can now record the capture of a still rarer visitor from the Old World, the Ruff. While visiting the English Lake Shooting and Fishing Club on April 12, 1905, I examined a number of ducks and shore birds which had been killed that day by Mr. Wm. M. Derby, Jr., of Chicago. The latter consisted principally of Summer Yellow-legs and Pectoral Sandpipers, but there was one specimen in the bag which puzzled me. Mr. Derby had been hunting ducks in the marsh, and while moving from one point to another he fired into a flock of shore birds which flew past his boat, killing several "grass birds" and the specimen in question. Mr. Derby very generously presented me with the bird, and after comparing it with several descriptions I felt assured as to its identity, but I am under obligations to my brother, Walter Deane, and Dr. Chas. W. Richmond who, after comparing the skin with other specimens captured in North America, in the collections of William Brewster and the Smithsonian Institution, pronounced it a typical Ruff, though, as is so characteristic with the species, they differ somewhat in size and plumage. The specimen was in moult, pin feathers being conspicuous on the head and neck. On dissection it proved to be a male, though the testes were but slightly developed. As a matter of reference I append (p. 411) as complete a list of all North American captures as I have been able to find.

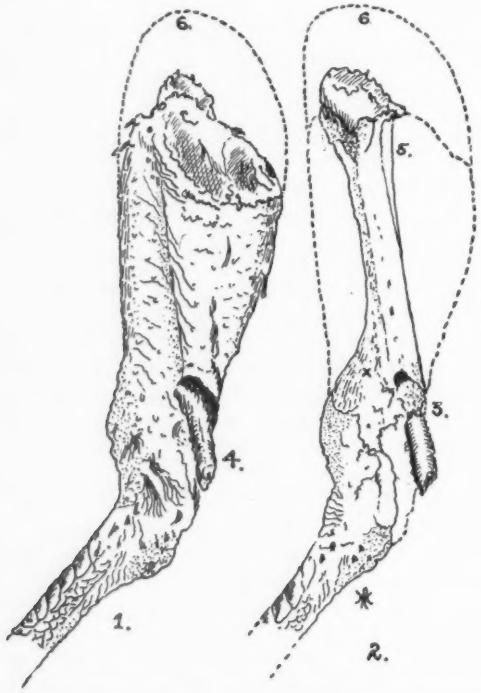
Dr. Richmond writes me that one of the specimens recorded by Boardman in his list of 1862, "one or two instances," is in the Smithsonian Collection. This is probably the first record for North America. In his 'Catalogue of Canadian Birds,' Pt. 1, p. 177, 1900, Mr. John Macoun records two specimens, a male and female, shot on Toronto Island, Ont., but Mr. J. H. Fleming informs me that the female proves to be a Bartramian Sandpiper. Mr. Macoun is also in error in giving the date of capture of the male as 1875, for it was taken in 1882, and is so recorded in 'The Auk,' Vol. II, p. 336, 1885, when at that time in the collection of Mr. John Young of Toronto, Ont.

Sex.	Locality.	Date.	In Collection of	Reference.
♂	Grand Menan, N. B.		U. S. National Museum	'Cat. of the Birds found in the vicinity of Calais, Me., and about the Islands at the mouth of the Bay of Fundy,' Geo. A. Boardman, Proc. Boston Soc. Nat. Hist., Vol. IX, 1862.
♀	Barnaget, N. J.		Am. Mus. Nat. Hist., N. Y. (formerly in the D. G. Elliot Coll.)	Birds Known to occur within Fifty Miles of New York City, F. M. Chapman, p. 35, 1894.
♂	Long Island, N. Y.		Am. Mus. Nat. Hist., N. Y. (formerly in the G. N. Lawrence Coll.)	Birds Known to occur within Fifty Miles of New York City, F. M. Chapman, p. 35, 1894.
♀	Long Island, N. Y.	May 18, 1868	Am. Mus. Nat. Hist., N. Y. (formerly in the G. N. Lawrence Coll.)	Birds Known to occur within Fifty Miles of New York City, F. M. Chapman, p. 35, 1894.
♀	Scarborough, Me.	Apr. 10, 1870	Everett Smith, Portland, Me.	Forest and Stream, Vol. XX, p. 85, 1883.
♀ ad.	Newburyport, Mass.	May 20, 1871	Wm. Brewster, Cambridge, Mass.	Am. Naturalist, Vol. VI, p. 306, 1872.
♂ juv.	Licking Reservoir, Ohio.	Nov. 10, 1872	Ohio State University	Bull. Nutt. Orn. Club, Vol. II, p. 83, 1877.
♀ juv.	Upton, Me.	Sept. 8, 1874	Wm. Brewster, Cambridge, Mass.	Bull. Nutt. Orn. Club, Vol. I, p. 19, 1876.
♂	Columbus, Ohio.	Apr. 23, 1878	Ohio State University	Birds of Ohio, Lynde Jones, p. 217, 1903.
♂ juv.	Chatham, Mass.	Sept. 11, 1880	Brookline High School (formerly in the Gordon Plummer Coll.)	Forest and Stream, Vol. XV, p. 186, 1880.
♂ juv.	Toronto Island, Ont.	Spring of 1882	Mus. Geol. Surv. Can., Ottawa, Ont.	Auk, Vol. II, p. 336, 1885.
♀	Raleigh, N. C.	May 6, 1892	Wm. Brewster, Cambridge, Mass.	Auk, Vol. IX, p. 299, 1892.
♂ ?	Cole Harbor, near Halifax, N. S.	May 27, 1892	Wm. Brewster (loaned by Thos. J. Egan, Halifax, N. S.)	Auk, Vol. XXII, p. 410, 1905.
♀ juv.	Alexandria Co., Va.	Sept. 3, 1894	Wm. Palmer, Washington, D. C.	Auk, Vol. XI, p 325, 1894.
♀	Camden, Me.	Sept. 14, 1900	John E. Thayer, Lancaster, Mass.	Auk, Vol. XXII, 409, 1905.
♂ juv.	English Lake, Ind.	Apr. 12, 1905	Ruthven Deane, Chicago, Ill.	Auk, Vol. XXII, p. 410, 1905.

RUTHVEN DEANE, *Chicago, Ill.*

A Broken Pigeon's Leg that Healed Itself. — The accompanying sketch shows a remarkable case of healing in a Pigeon's (*Columba*) leg. After the removal of the feathers, the tibia was seen to have been broken, and its sharp end pushed out through the flesh. The leg, however, was perfectly strong, though nearly half an inch shorter than the other. The protruding bone was in an advanced stage of decay, but the surrounding wound was perfectly healthy.

It was evident after removing the flesh that the protruding portion of the tibia would have soon dropped off, with the wound entirely healed,



Leg of Pigeon (*Columba*), showing healed fracture.

1. Leg with the feathers removed; 2, leg with the flesh removed; 3 decaying bone; 4, end of the tibia protruding through the flesh; *x*, point where knitting took place; 5, fibula; 6, original length of the leg.

which would have left from the exterior little indication of the broken limb. The slight swelling on the anterior edge of the bone alone would have suggested a fracture beneath. In the region of the healing the periosteum was perfectly smooth, continuous, and sound.

A few years ago I detected a similar healing in a Yellow Warbler's (*Dendræca æstiva*) leg. Is there any need for us to suppose that birds need "mud" settings for their broken limbs, when nature unaided accomplishes such perfect mends? — REGINALD HEBER HOWE, JR., *Concord, Mass.*

Turkey Vulture (*Cathartes aura*) **in Michigan.**— A bird of this species was shot by Samuel Kennedy in Atlas township, Genesee Co., Mich., about April 27, 1905, near the Medbury Farms. I examined this bird later. Resident hunters inform me that this is the first bird that they have ever known to have been taken in the vicinity. Personally I have never observed it in my visits in the county, which have extended since 1901. Mr. Samuel Shicer records a bird shot near Goodrich, five miles south of Atlas, on October 10, 1888 (O. & O., 1889, p. 43).— BRADSHAW H. SWALES, *Detroit, Mich.*

The Turkey Vulture in Western Massachusetts. — A young Turkey Vulture (*Cathartes aura*) was captured by Walter Stanley in Becket, a town in Massachusetts, thirty-five miles west of Springfield, June 8, 1905. The bird was observed in a field eating a dead lamb, and was then killed and sent to the Museum of Natural History in this city. — ROBERT O. MORRIS, *Springfield, Mass.*

The Gray Gyrfalcon in Wisconsin. — On Nov. 27, 1904, Fred Dean, a young hunter of this city, brought me a fine specimen of this bird, which is now No. 5777 of my collection of North American birds.

He shot it that forenoon, as it flew swiftly by him at a long range distance. The place was near an island known locally as Skunk Island, the bird at the time flying over a nearby marsh. The bird proved to be a young female.

Having handled Gyrfalcons when in Alaska I at once so named the specimen, and reference to descriptions of the bird in various works on ornithology further strengthened my belief. However, that no error might be possible I decided to have it examined by some authority, so it was sent on July 3 of the present year to Dr. Merriam of the Biological Survey. Dr. Merriam being at that time in the West the acting chief, Dr. A. K. Fisher, turned it over to Prof. Robt. Ridgway of the Smithsonian Institution, who examined it, labelled the bird *Falco rusticola* juv., in his own handwriting, and returned it to me. So there can be no doubt whatever of its identity.

That it is a rare capture for Wisconsin seems beyond doubt. Dr. King, in his list of Wisconsin birds published in 'Geology of Wisconsin,' Vol. I, makes no mention of it. Kumlien and Hollister in their 'Birds of Wisconsin' (Bull. Wis. Nat. Hist. Soc., Vol. III, Nos. 1–2–3), make no mention of the species. Nor can I, in any work at my command, find any specific mention of another capture or record of any nature for this State.

In the last mentioned work, on page 132, may be found a statement that "some species of gyrfalcon has been credited to the fauna of Wisconsin in an early day, a thing by no means impossible or unlikely ; but there is no actual record obtainable at present." Further it states there was one at Oshkosh, said to have been killed near Lake Winnebago. We have no intimation what became of this specimen nor any *proof* that it even *was* a gyrfalcon.

In view of these facts I do not hesitate to say that my bird constitutes the first actual record for Wisconsin. — W. E. SNYDER, *Beaver Dam, Wis.*

Northern Pileated Woodpecker in Massachusetts. — During a trip to the Berkshire Hills early in June for the purpose of seeing birds of that region, while walking up Greylock on the morning of June 7, 1905, we heard the harsh call of the Northern Pileated Woodpecker (*Ceophlœus pileatus abieticola*). The bird flew over the road and settled on a large dead tree trunk at quite a distance, where, guided by his hammering, we found a fine male at work three feet from the ground. We had good views of him then at close range and as he flew away. I was very glad that this beautiful woodpecker of the wild forests should still remain a resident of Massachusetts. — LIDIAN E. BRIDGE, *West Medford, Mass.*

A Rare Plumage of the Ivory-billed Woodpecker (*Campephilus principalis*). — A superb specimen of this magnificent woodpecker, which I obtained on February 19, 1894, in Jefferson County, Florida, has the ends of all the longer primaries (except the 3d and 4th) pure white. This specimen is an adult male in very high nuptial plumage, and is No. 3002 of my register. An adult female, which also was taken in Jefferson County, closely resembles the above male in the peculiar pattern of the primaries.

From a series of many specimens that I collected in different parts of Florida in the years 1892, 1893, and 1894, the two birds above described are the only ones, as far as I can recall, that were marked peculiarly as regards the longer primaries. — ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

The Prairie Horned Lark (*Otocoris alpestris praticola*) **on Mount Washington, N. H.** — I have lately spent thirteen days (July 7–19, 1905) at the summit of Mount Washington, where I was surprised to find two Prairie Horned Larks at home in or near what is known as the Cow Pasture, a comparatively level, sedgy, boulder-besprinkled place far above the tree line. One or both of the birds was seen and heard daily (usually twice a day — forenoon and afternoon) up to the 16th. On two occasions one was seen with its mandibles loaded with what seemed to be insects, and in general their behavior was such as to make it all but certain that they were breeding near by; but all my attempts to find the nest were unsuc-

cessful. On the 18th and 19th I failed to see them, perhaps because on both days an extremely high wind was sweeping across the 'pasture.' Possibly they had been driven away, with their young, by the sight and sound (and smell) of the racing automobiles, which from the 16th to the 19th had possession of the mountain road! The species has been recorded from several valleys in the White Mountain region, but, so far as I know, not from Mount Washington or any similar locality. — BRADFORD TORREY, *Wellesley Hills, Mass.*

The Pine Siskin Breeding at Guelph, Ontario. — During the past winter (1904–1905) the Pine Siskin (*Spinus pinus*) was abundant in the vicinity of Guelph, Ont. After the middle of April no flocks were noted but they were still commonly seen in pairs or groups of three or four individuals.

All through May they were common and were breeding throughout the county of Wellington. Some ten nests were found, all in white spruces, black spruces, or balsams.

The first nest for Central Ontario was found in Guelph on May 7, 1905, by Mr. F. Norman Beattie (Bull. Mich. Orn. Club, Vol. VI, Nos. 1–2). Our only previous Ontario records were for the vicinity of Ottawa where Mr. Sarneau has taken seven nests. — A. B. KLUGH, *Guelph, Ont.*

The White-throated Sparrow Breeding in Eastern Massachusetts.— On nine different days, from June 29 to August 6 of the present year, I heard a White-throated Sparrow (*Zonotrichia albicollis*) singing at the same locality in Boxford, Essex Co., Mass., and on several occasions I saw the bird plainly and fully identified it — once when in company with Dr. C. W. Townsend. I was unable to find the female or the nest, but on August 20 I saw at the same place two young birds of this species in the juvenal plumage with speckled breasts, one of them having the tail imperfectly fledged. They were alone while I watched them and were evidently able to shift for themselves. The finding of the young at this time and place and in this plumage seems to establish the fact of the breeding of the bird here. Messrs. Howe and Allen's List cites but two breeding records of this species for eastern Massachusetts — Browne, Bulletin N. O. C., Vol. V, p. 52, of a nest found in Framingham, 1879, by Mr. C. E. Haeuber, and Torrey, Auk, Vol. V, pp. 426, 427, of a pair observed for several days at one locality in the breeding season of 1888, in the town of Wakefield, the latter not being a "breeding record" strictly speaking. What gives the matter additional interest is the fact that on June 4, at a locality a quarter or half mile distant from that of the bird above-mentioned and also in the town of Boxford, I had previously heard the song of a White-throated Sparrow, but though I visited the place often thereafter I did not hear it again until July 2, when I heard it delivered two or three times and once very distinctly. This song was entirely different from that of the bird of the other locality, being one of

the commoner forms, while that was individual and quite unique in my experience. This convinces me that two male White-throated Sparrows passed the breeding season here, and suggests that the nesting of this species in Essex County may be something more than accidental. It is not easy, however, to account for the fact that the latter bird was heard but twice. I may also add that the two localities mentioned are separated by thick woods, and that two or three roads intervene. According to Mr. G. M. Allen's List of the Birds of New Hampshire, *Zonotrichia albicollis* has not been found breeding in the eastern part of that State south of Lake Winnepesaukee. The region about Boxford has a slight Canadian tinge, *Vireo solitarius*, *Helminthophila rubricapilla*, *Dendroica blackburniæ*, and *Hylocichla guttata pallasii* being found there in the breeding season.— FRANCIS H. ALLEN, *West Roxbury, Mass.*

Nesting of Henslow's Sparrow in St. Clair Co., Michigan.— The existence of Henslow's Sparrow (*Coturniculus henslowii*) as a summer resident, in Sections 1 and 36, Clay township, St. Clair County, Michigan, was reported to me by an eastern ornithologist in 1900, but as his observations were made from a passing electric car I regarded his identifications as doubtful. However, when Messrs. Swales and Taverner visited this locality on June 18, 1904, and found the birds common I determined to try for a set of their eggs. As I stepped from the car on May 28, 1905, and glanced over the vast expanse of marshy meadow land the prospect looked anything but promising, especially as I believed the birds would not flush from their nests but slip quietly away, and this was the case. Five hours of careful search revealed but one nest. This was in a lower portion of the meadow, where the ground was so wet that a foot impression quickly filled with water, but scattered about were numerous hummocks elevated a foot or two above the general level. The nest was on the side of one of these and skillfully concealed in a thick growth of marsh grass. It was composed entirely of fine dry grasses and contained four slightly incubated eggs. As these were warm I concluded the bird had glided away at my approach, so I retired about fifty yards, and after waiting fifteen minutes made a quick dash and surprised her on the nest. She was so startled that she flew a long distance before dropping into the grass.

Two days later, while crossing what is known as the 'Black Marsh,' in the village of Grosse Pointe Farms, Wayne County, I was surprised to hear a Henslow's Sparrow singing, and soon located him on a weed top. As I made toward him the female flushed at my feet but not from a nest. I could spare no time that day but returned on June 8 and found the entire territory under water, the heaviest rainfall on record here having occurred a few days previous. However, I waded over the whole marsh and counted twelve pairs of the birds, and doubtless a number escaped notice.— J. CLAIRE WOOD, *Detroit, Mich.*

Cassin's Sparrow in Colorado.— On May 27, 1905, I took a female Cassin's Sparrow (*Peucæa cassinii*) near Springfield, Baca County, Colorado, to the best of my knowledge the first to be taken in the State, although it was expected that it would be found sooner or later. The bird was perched on a barbed-wire fence on the prairie near Cat Creek, about a mile south of the town. Its breast was quite bare of feathers, so that it may have been incubating. Springfield is about thirty miles from both the east and the south boundaries of the State.— EDWARD R. WARREN, *Colorado Springs, Col.*

The English Sparrow at Tucson, Arizona. — The English Sparrow (*Passer domesticus*) has made its appearance in Tuscon, Arizona.— GEO. F. BRENINGER, *Phoenix, Arizona.*

The Orange-crowned Warbler (*Helminthophila celata*) a Winter Resident in South Carolina.— In 'The Auk,' III, 1886, 139, I recorded this warbler as occurring on the coast of South Carolina, from November to March. Prof. W. W. Cooke states in his article 'The Winter Ranges of the Warblers' (Auk, July, 1905, p. 297) that *H. celata* "occurs in migration" and is "rare or accidental" in the southeast United States, but that it does *not* winter.

This latter is certainly a "loose statement," as the Orange-crowned Warbler *winters abundantly* on the coast of South Carolina and it arrives from the northwest the last week in October and remains until the first week in April, or perhaps even later. The center of abundance of these warblers is on the coast islands, as the greater part of these islands are veritable jungles, which the Orange-crowned Warbler delights to inhabit. I have also taken this warbler in the winter in different parts of Florida, such as the Suwannee and Wacissa River regions.

The Orange-crowned Warbler is capable of enduring intense cold. I have seen numbers of these highly interesting birds near Charleston when the thermometer ranged as low as 8° above zero. While in South Carolina, these warblers are partial to thickets of lavender and myrtle bushes. ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Brewster's Warbler (*Helminthophila leucobronchialis*) at Englewood, N. J.— On May 13, Dr. Wm. Wiegmann, Carleton Schaller and I found a typical Brewster's Warbler at Englewood, N. J. It was with a flock of other warblers in an American elm pecking at the fruit (samaras). It was only a migrant, as it was not seen again, although I went to the same place the next day. The following description was written in the field. Above uniform pale grayish blue; anterior half of crown dull yellow; a black streak through the eye; superciliary line whitish; malar region hoary grayish; entire lower parts white, sides and flanks plumbeous, the latter color encroaching upon the breast; middle and greater wing-coverts tipped with yellow forming two beady wing-bars, more

extensive on the greater coverts; wings and tail olivaceous dusky, the outer tail-feathers with white inner webs; bill black; feet dark. It was perfectly silent.—GEORGE E. HIX, *New York City.*

Myrtle Warbler at Cape Elizabeth, Maine, in January, 1905.—In 'The Auk' for July, 1904, I gave data of the Myrtle Warbler (*Dendroica coronata*) wintering at Cape Elizabeth. During the past winter I watched the place closely to see if the birds would winter there again. A flock of six, at least, was seen there on Christmas day, 1904, but no more were observed until January 15, 1905, when two were seen in the same locality, about half a mile from where the birds lived in the winter of 1904–1905. January 29, two Myrtle Warblers were seen in the same field. After that the place was visited on several occasions, but not a warbler was seen during February. A Northern Shrike, however, made a stopping place there, and it may be that he had something to do with the absence of the warblers. April 16, one Myrtle Warbler was seen, in full breeding plumage, only two hundred yards from the locality, and I am inclined to think it was one which had wintered there, as not a single individual of the species had been seen in migration up to that date, and it was ten days or more before migrant Myrtle Warblers began to make their appearance.—W. H. BROWNSON, *Portland, Maine.*

Water-Thrush (*Seiurus noveboracensis*) Nesting in Lancaster, Massachusetts.—On May 21, 1905, Herbert Parker, Esq., Dr. Ernest Codman, A. E. Harriman and I visited a spruce swamp in the northern part of Lancaster. This swamp covers an area of about forty acres. It is filled with fairly good-sized spruce trees. There are a great many old up-rooted trees throughout the swamp. Calla lilies (*Calla palustris*) are very abundant and there is a great quantity of rhodora (*Rhododendron rhodora*) in the openings.

After tramping for awhile, listening to *Dendroica virens, D. maculosa, D. pensylvanica, D. blackburniæ, D. cærulescens, D. coronata, Mniotilta varia*, and *Compsothlypis a. usneæ*, Mr. Parker said he heard the song of a Water-Thrush (*Seiurus noveboracensis*). We all went to the spot. The bird was in full song; but even then we never suspected that it was nesting. After going a short distance, looking over each up-rooted tree as a matter of form, Harriman flushed a bird out of an up-rooted stump and looking down, discovered the nest with five eggs. The bird was very tame and remained close by her nest, moving her tail up and down like a Spotted Sandpiper (*Actitis macularia*). I told him to shoot her, which he did.

On examining the root we found an old nest a little above the present one, which the bird had evidently used last year. The eggs of this set proved to be nearly three quarters incubated.

Not over two hundred yards from the first nest, Dr. Codman flushed another bird from her nest, which contained five eggs. This nest was

not in an up-rooted tree but sunk in a bank only a few inches from the ground. The bird was extremely tame. She kept moving her tail up and down every step she took. We all sat down not over ten feet from the nest and watched her. After waiting a few moments she went back on her nest. If I had had a camera I could have taken a most interesting picture. I could almost put my hand on her. After a consultation we all agreed that it would be a needless waste of life to shoot her, as we already had secured one bird. We were absolutely positive as to the identity of this one.

The eggs were incubated as much as the first set.

Mr. Wm. Brewster has seen both sets and has identified the bird.— JOHN E. THAYER, *Lancaster, Mass.*

The Louisiana Water-Thrush in Philadelphia in Summer. — On June 14, the only day this year, so far, that I have hunted on the Wissahickon Creek, I found two birds of this species (*Seiurus motacilla*) on the left bank of that stream, just above the Valley Green Hotel. With beaks full of food they chirped continually in protest at my presence, and altogether showed plainly that they had young in the immediate vicinity.

A nest recorded by Mr. H. K. Jamison (O. & O., 1891) is the only other breeding record inside the city line with which I am acquainted. It, also, was on the Wissahickon. — CHARLES H. ROGERS, *Crosswicks, N. J.*

The Redstart (*Setophaga ruticilla*) a Resident in Dominica, West Indies. — In a letter dated Barbuda, April 8, 1905, Mr. H. G. Selwyn Branch writes me that the Redstart is a resident in the island of Dominica, and that he has observed it building its nest there. From this it may be inferred that the bird breeds in the island, a locality very far south of its breeding range as now understood. — AUSTIN H. CLARK, *Boston, Mass.*

The Black-fronted Warbler (*Dendroica auduboni nigrifrons*) in Southern California. — I have an adult male of this species in breeding plumage taken on April 1, 1901, by Mr. H. S. Swarth, at Los Angeles, California. The specimen is marked *Dendroica auduboni*, but upon comparing it with several males of *D. a. nigrifrons* in breeding plumage taken late in May and June in the Huachuca Mountains, Arizona, I find that the Los Angeles specimen is much more richly colored. As far as I am aware, this subspecies has not been before reported from California. — ARTHUR T. WAYNE, *Mount Pleasant, S. C.*

Young Birds Killed by Trains. — On June 13, 1905, Mr. B. W. Griffiths and the writer were walking along the tracks of the Downingtown and Lancaster Branch of the Pennsylvania Railroad near Honeybrook, Chester County, Pa. Inside of a mile we picked up two dead birds from between the tracks — a young Vesper Sparrow, and a young Purple Grackle. The whole side of the grackle's head was torn off, but I could find no marks upon the sparrow.

Several days later, on the Wilmington and Northern tracks near the same place, I picked up a young Grasshopper Sparrow — also dead but without a mark. All three of these birds were in the juvenile plumage and of about the same age — just beginning to use their wings. Does it show lack of intelligence on the part of the young bird? I believe a great many are killed this way every year and I have never found an adult bird that had been killed by a train.

I believe it is due more to their weak flight than to anything else. They get near the tracks and the suction caused by the passing train draws them beneath it, their wings being too weak to resist the strain. — CHRESWELL J. HUNT, *Philadelphia, Pa.*

Some Massachusetts Records of Interest.— During the past year I have noted several birds of some interest in this region.

Late fall migrants, 1904, include:

Empidonax minimus, Chebec, Concord Turnpike, Lexington, Oct. 2, one.

Dendroica maculosa, Magnolia Warbler, Waltham, Oct. 9, one.

Dendroica striata, Blackpoll Warbler, Cambridge, Nov. 7, one.

An interesting winter record is *Euphagus carolinus*, Rusty Blackbird, Concord Turnpike, Concord, Jan. 22, 1905, one.

Early spring migrants, 1905, include:

Butorides virescens, Green Heron, Charles River, Needham, Apr. 9, one.

Zonotrichia leucophrys, White-crowned Sparrow, Hobb's Brook, Lexington, May 4, one.

Coccyzus erythrophthalmus, Black-billed Cuckoo, Rock Meadow, Belmont, May 4, one.

Other records of interest, 1905:

Oidemia deglandi, White-winged Scoter, one male, Arlington, Spy Pond, May 9.

Bartramia longicauda, Bartramian Sandpiper, Ipswich River, North Reading, May 13, one.

Icterus spurius, Orchard Oriole, Ipswich, May 28, one male.

Vireo noveboracensis, White-eyed Vireo, Ipswich River, South Middleton, June 9, one.— ARTHUR C. COMEY, *Cambridge, Mass.*

Notes from Northwestern Connecticut.— *Otocoris alpestris praticola.*— On May 25, 1905, I secured a pair of these birds in a meadow on the crest of a low ridge about eight miles south of the village of Litchfield. They undoubtedly had a nest there, for they both had been seen in the same meadow the preceding day, and the thin skin of the belly of the female indicated that she probably had a brood. Both were very shy, which I have not found to be the case with these birds later in the season. I believe that this is the first breeding record for the State of Connecticut.

Helminthophila peregrina.— It may be of interest to note that the

Tennessee Warbler was almost common in the *village* of Litchfield during the nine days from May 19 to 27 inclusive this last spring. Litchfield is situated on a high ridge, along the crest of which runs the main street, bordered with tall elms. To these trees and to those in the grounds about the houses close to the street the birds seemed to be restricted; for though I was in the field every day throughout the migration, I did not see or hear one outside of the village. I secured five on different days within that time out of one tree in our own grounds, and heard or saw several others in the neighboring yards. — EDWARD SEYMOUR WOODRUFF, *Litchfield, Conn.*

Two Records for Colorado.— FLICKER. *Colaptes auratus.*— Oct. 24, 1904, I obtained in Hall Valley, Park Co., Colorado, a specimen of the eastern Flicker showing not a trace of hybridization with the Red-shafted Flicker. This is the first record for this bird in our State at such an altitude, this specimen being taken at an altitude of 10,000 feet.

CANVAS-BACK. *Aythya vallisneria.*— July 4, 1900, I found near Barr Lake, Adams Co., Colorado, a set of eleven eggs of the Canvas-back. The eggs were fresh. This is the first record I believe for this bird's breeding in our State.— A. H. FELGER, *Denver, Colo.*

Colorado Notes.— The Wood Thrush (*Hylocichla mustelina*) may now be added to the Colorado avifauna. It is reported by Miss Jennie M. Patten at Yuma, Colo., one specimen being seen on May 27, 1905, under such circumstances that indentification was easy and certain. She also reported a Cardinal (*Cardinalis cardinalis*), but afterwards discovered that it was an escaped cagebird. The same observer reports two Red-eyed Vireos (*Vireo olivaceus*) at the same station on May 27, 1905, and afterwards. Colorado records for this species are meager. Also Baltimore Orioles (*Icterus galbula*) in 1903 and May 22 and 23, 1905.

I watched a Blue-gray Gnatcatcher (*Polioptila cærulea*) for some time at short range near Boulder on May 12, 1905. This is the first record north of Denver in Colorado, so far as I am aware. Bobolinks appeared again this year in some numbers east of Boulder, from which the inference is warranted that they are regular visitants, unnoted until last year.

A male House Finch (*Carpodacus mexicanus frontalis*), assisting his mate in raising a family of five nestlings under the roof of our front porch, confirms a long cherished suspicion that lack of red plumage does not always indicate immaturity. His plumage appears to be almost exactly like that of the female. He sings a great deal, with the full song of the male, though at first the song seemed a little weak — perhaps a mere fancy engendered by the apparently immature plumage. He had several fights with a highly colored male when nest building first began, and his mate then fought more valiantly than he did.

Songs of Female Birds.— Ornithological literature seems to say very little about the nesting songs of female birds, or I have been unfortunate

in my quest for information upon the subject. When a friend, some years ago, told me he had closely watched a female Black-headed Grosbeak (*Zamelodia melanocephala*) on the nest singing as heartily as the male, I was quite skeptical, but am now inclined to believe him, except that he may have exaggerated the quality of the song. Last year I asked a number of western ornithologists if they had noticed the nesting song of the female House Finch (*Carpodacus mexicanus frontalis*) and was answered in the negative, yet it has a distinct, well defined song in Boulder, Colorado, at least, and it is not likely to differ in this respect elsewhere. I have watched several pairs about my home and vicinity, and in every instance have found the same song. It is an exact repetition of the first part of the male's usual song, from two to six notes, cut short at the end and repeated over and over in great excitement, the performance continuing thus for some moments at a time, often for a quarter or half hour. In each instance this has been a daily occurrence from the time the last egg was laid until after the young birds left the shell, generally while the bird was on the nest, though sometimes while in the vines or on the housetop, the male often joining in with the full song, making a remarkable duet. The tones can scarcely be distinguished from those of the male after a few days of practice. The excitement of the bird during these concerts is something that must be seen to be appreciated, increasing from day to day until the hatching of the eggs causes s much work that vocal efforts are neglected.

Denis Gale.—The name of Denis Gale will bring to the mind of many ornithologists, particularly those who have worked in the mountains of Colorado, the picture of an elderly gentleman whose energy in bird study knew no bounds, who was willing to brave wind and heat and cold and storm in his tramps from valley groves to snow-clad mountain crests in the interests of ornithology, whose collections have helped enrich the splendid collections of the Smithsonian Institution, and whose notes were of great assistance to Capt. Bendire and others, for Mr. Gale, while always willing to furnish information to others, was not much given to publishing his observations himself. Failing health stopped his work several years ago, and a few months ago he passed to his eternal rest in Denver. It will no doubt interest ornithologists to know that through the generosity of Mr. Simon Guggenheim, all of Mr. Gale's collections not heretofore sent to the Smithsonian Institution are now deposited in the museum of the University of Colorado, at Boulder, including his valuable notes on migration, food and nesting habits, covering a period of more than ten years in the mountains. The notes are now being transcribed, annotated and indexed by the undersigned, so as to make them available for the use of bird students visiting the University. It occurs to me that a note of this in 'The Auk' would be appreciated by those who are familiar with Mr. Gale's work.—JUNIUS HENDERSON, *University of Colorado, Boulder, Col.*

Some Wayne County, Michigan, Notes, 1905. — *May 7.* — Secured a Golden-crowned Kinglet (*Regulus satrapa*) afflicted with a tumerous growth, about the size and shape of a marble and completely surrounding the tarsus. It is many years since I observed a similar morbid growth on a bird. The other example was a Chipping Sparrow (*Spizella socialis*). This was also a globular enlargement of the tarsus about the size of a walnut, and so heavy that the bird could no longer rise from the ground. There was no distinctive difference in the two above cases, except the size, and I would not term the malady a malignant development, as it appears as an independent growth in no way directly affecting the vital forces. Indirectly, however, it probably causes death by assuming a size and weight that retards the bird from obtaining necessary nourishment.

May 21. — Secured an adult female American Redstart (*Setophaga ruticilla*) with abnormal development of mandible, which was bent upward along the side of the maxilla so that the tip projected slightly above the culmen ridge. There were no notches where the mandible and maxilla crossed, as seems to be the case when similar malformation occurs with hard-billed birds. This bird was in perfect physical condition and was conveying nest material when secured, thus showing that the abnormality was not an impediment to securing food or a mate.

June 6.— Made the acquaintance of a Catbird (*Galeoscoptes carolinensis*) that deserves a pension. When first noted she was attacking a large female moth, *Attacus cecropia*. When struck the moth would flutter its wings, which caused the catbird to jump back as if expecting a counter blow. She gradually became bolder, however, and finally conveyed the prize to her nest of young in a neighboring spruce. Shortly after she was dancing about a *Sphinx tiliæ*, but this I took away from her to adorn my 'den'! Finally I was near the nest when she brought a male *A. prometheus*.

June 11. — Caught a Green-crested Flycatcher (*Empidonax virescens*) on her nest containing three eggs. As a rule one does not even see this flycatcher on the nest. She almost invariably observes you first and quietly leaves. This nest was near the end of a horizontal elm branch and about two feet higher than I could reach. I pulled the branch down until I could get hold of her tail. She did not show much interest until I gave this appendage a gentle jerk. She then moved her head quickly from side to side and finally stretched out her neck and peered down at me, but did not leave until I repeated the operation several times. The eggs were infertile and entirely unspotted and everything suggested some form of physical debility. I did not really catch her but held her tail very gently so as not to deprive her of it as she started away, but from what I saw of her at close range, and her actions later, I think she was a very old bird, nesting a season beyond her time.

July 9. — Collected an adult male Golden-winged Warbler (*Helminthophila chrysoptera*) in slightly abnormal plumage. The uniform slate-gray of the upper parts, together with yellow of forehead and crown, were

somewhat obscured by olive green tips to the feathers, most pronounced on occiput and nape where the ground color is entirely concealed. This differs but slightly from the plumage of winter males but is not apparent in a series of early July specimens, including two taken on same date. Were this the only difference I would not deem it worthy of especial mention, as it may be a common plumage of the non-breeding bird, but there is a decided difference on the under parts. The breast is lemon yellow, contrasting sharply with the black of the throat and blending into yellowish white on the abdomen and gray on sides. The entire plumage is soft, silky and bright, while in normal examples taken at this season it is rough, worn and dull. The sperm ducts were the only evidence of sex I could discover on dissection. It was undoubtedly a non-breeding bird. — J. Claire Wood, *Detroit, Michigan.*

RECENT LITERATURE.

Stephens's 'Life Areas of California.'— In a paper[1] of eight pages, illustrated with a map, Mr. Stephens summarizes briefly the principal causes controlling the geographical distribution of life, and then proceeds to a detailed, but also brief, consideration of the faunal areas of California, which presents a greater diversity of physical conditions than any other well known region of similar size. With a latitudinal extent of 600 miles, it varies in altitude from below sea level to elevations of nearly 15,000 feet. The north and south trend of the high mountain ranges abstracts the moisture from the air as the winds from the sea pass over them, leaving beyond in the interior areas of great aridity, the annual rainfall in different parts of the State ranging from 80 inches in the northwestern part to 3 or 4 inches in the southeastern part. Under these varied conditions the life zones of the State range from the arctic to the subtropical, the former, however, occupying only limited areas on the higher mountain crests and the latter restricted to the bottom lands of the Colorado River.

Mr. Stephens's major divisions are as currently recognized, the special purpose of the paper being the definition of the minor faunal areas, or 'Faunas,' of which he provisionally defines 17. These are:

1. *Humboldt Fauna*,— a narrow coast belt extending from Oregon south to San Francisco Bay. Transition.

2. *Shasta Fauna*,— the region about Mount Shasta. Transition.

3. *Modoc Fauna*,— the northeastern part of the State, north of Honey Lake, and east of Mount Shasta. Transition.

4. *Sacramento Fauna*,— Sacramento-San Joaquin Valleys. Lower Austral.

[1] Life Areas of California. By Frank Stephens. Trans. San Diego [California] Society of Nat. Hist., Vol. I, No. 1, 1905, pp. 1–8, with map.

5. *Foothill Fauna*,— a belt of the upper Austral along the western lower lope of the Sierra Nevada.

6. *Sierra Nevada Fauna*,— the transition life zone of the Sierra Nevada mountains.

7. *California Alpine Fauna*,— higher parts of the Sierra Nevada. Boreal.

8. *Clear Lake Fauna*,— "a broken region of moderate extent," bounded by the Humboldt, Shasta, and Sacramento Faunas. Upper Austral.

9. *San Luis Obispo Fauna*,— bounded by the Sacramento, Santa Cruz, and San Jacinto Faunas and the Pacific Ocean. Upper Austral.

10. *Santa Cruz Fauna*,— a narrow coast belt, extending from San Francisco Bay south to a little below Point Sur. Transition.

11. *San Jacinto Fauna*,— interior of southern California, south of the San Luis Obispo Fauna and west of the Colorado Desert. Upper Austral.

12. *San Diego Fauna*,— southeastern California. Lower Austral.

13. *San Bernardino Fauna*,— that portion of the Transition zone lying south of latitude 35°.

14. *California Arctic Fauna*,— the summits of the higher peaks of the Sierra Nevada.

15. *Mojave Fauna*,— Mojave Desert. Lower Austral.

16. *Colorado Valley Fauna*,— the Colorado River bottom lands. Subtropical.

17. *Island Fauna*,— the islands off the southern coast of California.

These several faunas, numbered as above in the key to the map, fall into the several life zones as follows:

Arctic.

California Arctic Fauna.

Boreal.

California Alpine Fauna.

Transition.

Modoc Fauna.
Sierra Nevada Fauna.
Mount Shasta Fauna.
Humboldt Fauna.
Santa Cruz Fauna.
San Bernardino Fauna.

Upper Austral.

Foothill Fauna.
Clear Lake Fauna.
Island Fauna.
San Luis Obispo Fauna.
San Jacinto Fauna.

Lower Austral.

Sacramento Fauna.
San Diego Fauna.
Mojave Fauna.

Subtropical.

Colorada Valley Fauna.

While the major life zones of California were defined in a general way some years ago by Dr. Merriam, and also by Mr. Keeler, and some of the minor areas by Dr. Grinnell in 1902,[1] this appears to be the first attempt to delimit and name the Faunas of the State, as such, the faunal areas, or "Isohumic Areas," of Grinnell, ten in number, being climatic rather than faunal. Mr. Stephens's extended field experience in California has made him familiar with the faunal as well as the climatic conditions prevailing over a large part of the State, so that his paper on its faunal areas is based largely on personal knowledge. It is to be regretted, however, that he did not give more space to details in defining his faunal areas, and also that they were not more formally set off typographically in the text.—J. A. A.

Chapman on the Life History of the American Flamingo.[2]—In this paper of twenty-five pages, with numerous half-tone illustrations from photographs of the living birds, Mr. Chapman has presented the scientific results of his studies of the great Bahama Flamingo rookeries in May, 1902, and May and June, 1904. An earlier popular account of the same observations was given by him in 'The Century Magazine' for December, 1904, and also some notes on the habits of the young birds in 'Bird-Lore' (Vol. VI, pp. 193–198). Also in 'The Auk' for January, 1905 (XXII, pp. 107–109), in our account of the 'Flamingo Group' recently placed on exhibition in the American Museum of Natural History, some reference is made to his successful trip to the Bahamas for Flamingoes in 1904. The present paper gives a systematic and very full account of the life-history of the species as observed under the most favorable conditions. He remained at the rookery from June 7 to June 14, studying the birds at close-range during the height of the breeding season. By erecting skilfully devised 'blinds' he was able to established himself in the very midst of the great rookery, "without apparently arousing the birds' suspicions," from which the colony could be observed and photographed as a whole, or the individual birds, young and old, "studied from as near as six feet."

After a brief summary of the work of previous observers, he proceeds to give a detailed account of the habits of the birds, including the time of nesting, the character of the nesting ground, the nest and its construction, the eggs, the period of incubation, the habits of the young birds and of the adults, including their notes and food; while the reproduced photographs show the rookery when the birds are in repose (incubating and

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[1] Check-List of California Birds. Pacific Coast Avifauna No. 3, June, 1902, pp. 6, 7, and 2 maps.

[2] A Contribution to the Life History of the American Flamingo (*Phœnicopterus ruber*), with Remarks upon Specimens. By Frank M. Chapman. Bull. Am. Mus. Nat. Hist., XXI, 1905, pp. 53–77, with 15 text figures. June 15, 1905.

sleeping), the nests with the single egg or young bird, the young in various stages of growth, the adults in various acts and attitudes, the old birds in the air leaving the rookery, a deserted rookery, etc. In addition to this the various plumages of the young are described, the adult plumage, the changes in the form of the bill with growth, with a table of comparative measurements of old and young birds, showing the great relative increase in the length of the tarsus in the old as compared with young birds. As a result we have laid before us in detail the life history of a species of which comparatively little was previously positively known. — J. A. A.

Oberholser on Birds Collected in the Kilimanjaro Region, East Africa.[1] — This collection, made by Dr. W. L. Abbott during the years 1898 and 1899, comprises 256 species and subspecies, represented by 684 specimens. Most of the novelties had previously been described by Dr. C. W. Richmond in 1895, the new forms brought out in the present paper numbering three species and six subspecies. In the course of the paper, however, several new genera and ten new subgenera are proposed, since in working up Dr. Abbott's collection Mr. Oberholser has incidentally included considerable revisionary work on several groups of East African birds, and upon the nomenclature of other species.

The collection was found to include a number of rare species, besides extending, even at this late day, the known range of a number of others. "The best idea," says Mr. Oberholser, "of the marvelous richness of this collection of Dr. Abbott's is probably furnished by the subjoined list of 62 species and subspecies that were undescribed when obtained by him, an exposition that is possibly of more than passing interest as indicative of the great progress in African ornithology that the past eighteen years have witnessed."— J. A. A.

McGregor on Philippine Birds. — We are in receipt of two papers[2] by Mr. McGregor, giving a further account of his ornithological work in the Philippine Islands. The first relates to the islands Romblon, Sibuyan, and Cresta de Gallo, and is based on two months spent in their exploration in 1904 (May 25–July 21). Besides field notes on about 90 species,

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[1] Birds collected by Dr. W. L. Abbott in the Kilimanjaro Region, East Africa. By Harry C. Oberholser, Assistant Ornithologist, Department of Agriculture. Proc. U. S. National Museum, Vol. XXVIII, pp. 823–936, 1905.

[2] I. Birds from the Islands of Romblon, Sibuyan, and Cresta de Gallo. II. Further notes on Birds from Ticao, Cuyo, Culion, Calayan, Lubang, and Luzon. By Richard C. McGregor. Publication No. 25, Bureau of Government Laboratories, Depart. of the Interior, Philippine Islands, Manila, May, 1905. 8vo, pp. 1–34, pll. i, *ibis*, ii–x.

some of which are here recorded for the first time from these islands, two are described as new and descriptions are given of previously unknown plumages of others. Nominal lists follow the general list, giving the species observed on each island.

The second paper is of a similar character, and relates to the islands Ticao, Cuyo, Culion, Calayan, Lubang, and Luzon, and are supplementary to previous papers on collections from these islands. This relates to 15 species, including two described as new and interesting notes on the nesting habits of the Panay Hornbill (*Penelopides panini*) and the nesting habits of several of the Philippine Swifts.

The eleven half-tone plates illustrate the mound of *Megapodius cumingi* (two plates), the nests and eggs of several species of swifts (genus *Salangana*), the nest and eggs of the Panay Hornbill, and a species of *Cisticola*. — J. A. A.

Hartert's 'Die Vögel der paläarktischen Fauna,' Heft III. — The third part[1] of Dr. Hartert's Birds of the Palæarctic Fauna carries the species and subspecies from No. 394 to 629 — from about the middle of the Alaudidæ through the families Motacillidæ, Mniotiltidæ (three extralimital species), Nectariniidæ, Zosteropidæ, Certhiidæ, Sittidæ, and the greater part of Paridæ. The method of treatment is of course uniform with that of the preceding parts (*cf.* Auk, XXI, 1904, pp. 95 and 505), showing similar conservatism in respect to genera and the same proneness to fine splitting in respect to subspecies. Especially noticeable also is the tendency to combine allied forms as subspecies, sometimes apparently without satisfactory reasons therefor, as where *Parus sclateri* of Mexico is made a subspecies of *Parus palustris*, although separated geographically by thousands of miles from the range of any other member of the group. Similarly a form of Nuthatch from Corsica and another from northern China are made subspecies of *Sitta canadensis*. Ten palæarctic forms of titmice are referred to *Parus atricapillus*, including the whole *P. montanus* group, and a number of others. The author apparently has no use for subgenera, all of the palæarctic subgenera of *Parus*, recognized by Hellmayr in his recent excellent monograph of the Paridæ, being merged in *Parus*. In short, our author's treatment of this and allied families is far less satisfactory, and less consistent and rational, than the recent revision of these groups by Hellmayr. Hartert includes under *Parus* 93 palæarctic forms, of which 20 rank as species and of which 8 have no subspecies, leaving 73 subspecies under the other 12 species, or an average

[1] Die Vögel | der paläarktischen Fauna. | Systematische Übersicht | der | in Europa, Nord Asien und der Mettelmeerregion | vorkommenden Vögel. | Von | Dr. Ernst Hartert. | Heft III. | Seite 241–384. | Mit 16 Abbildungen. | — | Berlin. | Verlag von R. Friedländer und Sohn. | Ausgegeben im Juni 1905.— 8vo, pp. 241–384. Price 4 marks.

of 6 (= 7 forms) to each, *P. major* and *P. palustris* each having 13, *P. ater* 14, etc.

The Alaskan *Budytes flavus alascensis* Ridgw. stands as *Motacilla flava alascensis*; the North American *Anthus pensylvanicus* as *A. spinoletta pensylvanica.*

Eremophila is used in place of *Otocoris*, since in the opinion of Mr. Hartert the generic names *Eremophilus* and *Eremophila* are both tenable. It may here be also noted that from his point of view a specific or subspecific name need not agree in gender with the generic name, it being his preference to preserve the original ending of a specific name when transferred to a genus which has a different gender ending, as in the case above of *Anthus pensylvanicus*, which was originally described as a species of *Alauda*. It may be further noted that the palæarctic species of *Otocoris* here recognized number 15, all subspecies of *alpestris*, as against 14 recently admitted by Oberholser, who, however, gave full specific rank to 5 of them. But in only nine cases are the same names adopted.

Despite certain excentricities of treatment, Dr. Hartert's 'Die Vögel der paläarktischen Fauna' will long prove a most useful and convenient hand-book, for which ornithologists may well feel deeply grateful.— J. A. A.

Clark on the Amount of Difference that should characterize Species and Subspecies.— We regret that the character of Mr. Clark's paper[1] is such that if it is to be noticed here at all it must be considered at some length. Were it not that it doubtless reflects the attitude of the 'lay' class, and thus appeals to the sympathies of the untrained who have neither the opportunity nor, perhaps, the desire to become experts, and is thus a misleading presentation of the case, it might well be passed over without mention. The author, Dr. Hubert Lyman Clark, is not unknown to readers of 'The Auk' and to ornithologists in general through his various excellent papers on the pterylography of various groups of birds, but so far as technical descriptive ornithology goes his experience has evidently been extremely limited. That such is the case, the rules he prescribes give evidence.

In the present paper he has formulated "fundamental rules," which, it seems to him, ought to govern work in systematic zoölogy. They are each explained and defended at some length against criticisms made by the present reviewer upon a previous paper of his on the same subject. The history of the case cannot be given better than in his own words. As the following quotations contain transcripts of the previous objectionable criticisms they will in part cover what it seems desirable to say in the present connection. He says:

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[1] The Limits of Difference in Specific and Subspecific Distinctions. By Hubert Lyman Clark. Fifth Annual Report of the Michigan Academy of Science for the year 1903, pp. 216–218.

"It was my misfortune last summer to feel called upon to criticise some recent ornithological work in which the process of recognizing subspecies had been carried to the extreme, and my opinions were published in SCIENCE, August 8, 1902, under the heading 'So-called Species and Subspecies.' In the same journal, September 5, Dr. J. A. Allen, the well known zoologist, criticised my opinions as those of a layman, and emphatically denied two of my main contentions. As nothing is gained by newspaper controversy, I made no reply, but the questions involved are extremely important and after six months further consideration of them, I have decided to set forth what seem to me some of the fundamental rules, which ought to govern work in systematic zoology. First, however, as Dr. Allen has challenged my right to opinions on the subject, it is only fair to say that, although I have never described a new or supposedly new bird, I have had occasion to examine carefully several thousand specimens of echinoderms, and have been under the necessity of naming a number of new species in that group, so that I am not an entire stranger to the numerous perplexities of the systematist, to which Dr. Allen refers. Now I freely admit that from the systematist's point of view, birds are more perplexing than echinoderms, and that Dr. Allen, both because of his naturally judicious temperament and by his many years of experience amid exceptional opportunities, is far better qualified to discuss this subject than am I. Yet I do feel, that whether the animal be a bird, a fish, a worm or an infusorian, the essential principles of systematic zoology ought to be the same in all cases, and that any zoologist who has wrestled honestly with the knotty problem of specific distinctions is entitled to opinions on the subject. I therefore venture to state some of these essential principles as they appear to me.

"*1. Characters which are not sufficiently conspicuous, so that they can be stated in language or figures of some sort, ought not to be made the basis of a new name.*

"This principle appears so axiomatic that an apology would be made for stating it here, if it had not been seriously questioned by Dr. Allen. He says: 'In ornithology, and especially in mammalogy, perfectly "good species" are often so similar in size and color that even the expert cannot satisfactorily identify them from descriptions, and hence, almost from time immemorial, direct comparison with authentic material has been necessary in order to settle such difficult cases. As all experts in this line of study well know, forms that may be indistinguishable by descriptions are, when brought together, and especially when series are compared, so noticeably different that there is no trouble in distinguishing them at a glance.' Now I confess that after giving these words careful thought I am unable to believe that the validity of my contention is affected. I am utterly unable to conceive of two objects, which I could 'distinguish at a glance,' the differences between which would be so intangible that I could not state them 'in language or figures of some sort.' As to the comparison of specimens with types or other authentic

specimens, 'from time immemorial,' surely it is well known that the necessity for this is due to imperfect, inaccurate and erroneous descriptions, and not to the fact that 'perfectly "good" species' cannot be distinguished without comparison. If a character, whether in color, size, form, texture, odor, notes, habit or anything else, cannot be detected by sight, touch, smell, taste or hearing to such a degree as to admit its translation into intelligible language or figures, it surely is not fit to be made the basis of a new name. Of course I do not contend that the 'language or figures' must be intelligible to the 'layman,' for that unfortunately is not at present feasible and probably never will be."

In regard to "imperfect, inaccurate and erroneous descriptions," it may be said that such we have always with us, and always will have; they almost form the bulk of past descriptive zoölogy, and will hold also a prominent place in the future; they are partly, perhaps largely, due to carelessness and slovenly methods, but are in part inherent and unavoidable, until a standard terminology for shades of difference in colors shall have been invented and generally adopted. Language at present is inadequate to convey to the mind definite and exact shades of color, even when strikingly different to the eye, because scarcely any two persons would describe the same shades between, say buff and chestnut, running through the endless tones of yellowish and reddish browns, in just the same terms. Whatever the cause of this vagueness of description, it exists, and will exist for a long time to come, producing a condition militant against Mr. Clark's 'Principle 1.' Words, as we now have to use them, cannot adequately convey to the mind differences in color and texture that are palpable enough when seen.

"*2. Differences in dimensions, of less than five per cent., ought not to be made the basis of a new name.*

"This principle is certainly not radical, yet it would shut out a large number of recently described subspecies of birds, and perhaps other animals also. The reason for this rule is that individual variation in a species is so much larger than was formerly supposed, no constant difference can be maintained between two forms which differ from each other by less than five per cent. in size. I believe ten per cent. would be a safe rule, but if five per cent. could be agreed on many ridiculous new names would never see the light of day. In Dr. Allen's famous paper 'On the Mammals and Winter Birds of East Florida' (Cambridge, 1871), he says: 'The facts of the case show that a variation of from fifteen to twenty per cent. in general size, and an equal degree of variation in the relative size of different parts, may be ordinarily expected among specimens of the same species and sex taken at the same locality, while in some cases the variation is even greater than this.' Such being the case five per cent. is not a high standard to suggest."

While Mr. Clark's quotation from my 'Mammals and Winter Birds of East Florida' respecting individual variation is all true, there is another side to the question, and that is that the average difference in general size

or the size of particular parts, as the bill, wing, tail, tarsus, etc., in closely related species is often much less than the range of purely individual variation in any one of the several species that may be involved; and where color at the same time may fail, as happens in some groups, even the expert is sorely puzzled to discriminate between museum specimens of species that in life are at once recognizable as distinct by their notes, habits, pose, and almost every act and attitude, as in the case of some of the species of the genus *Empidonax*. Thus an expert confessed to me that on one occasion when he came to label up his season's collecting he found that in order to tell 'tother from which' in the case of two perfectly distinct species of *Empidonax* he had to resort to dates of collecting and his notes on the living birds entered in his notebook to decide which was which! The present writer once had also a similar experience. Yet it is not quite impossible nearly always to recognize these closely related forms — good species, not subspecies — without recourse to notes on the living bird. Much more might be said anent "Principle 2"; but inasmuch as many species that no one could confound in life would be ruled out by the "five per cent." rule, it is hardly necessary to say more.

"*3. Characters which cannot be recognized without knowledge of the geographical origin of the specimen ought not to be made the basis of a new name.*

"This is a very essential principle if we agree that an important end of systematic zoology is correct knowledge of the geographical distribution of animals. It seems to me axiomatic that characters which cannot be recognized regardless of the locality where the specimens are collected are worthless, yet Dr. Allen holds to the contrary, and regards my support of this principle as evidence of my writing without possessing the necessary familiarity with the facts. The horned lark from Mexico named *Otocoris alpestris chrysolæma* by Oberholser differs from the same author's subspecies *actia* so slightly that he himself admits they are indistinguishable, unless the locality where collected is known. I am unable to see what possible gain there is in giving a name to such a form; while christening it may easily lead to serious errors in determining the geographical distribution of the real subspecies of horned larks. And in all other groups of animals, the confusion of special geographical position with essential morphological character leads, and always will lead, to most erroneous conclusions concerning the distribution and history of species. A well known American mammalogist is said to hold the view that any mammal resident on an island must necessarily be a different subspecies from the form on the neighboring mainland, because of its isolation. If such views are current among systematists, (which I greatly doubt), it is not strange that morphologists, physiologists and embryologists have long held systematic zoology in contempt, and even now regard with suspicion our claims to a place among the real devotees of science."

Respecting 'Principle 3' little need be said, either in its favor or

against it. It may stand as at least a suggestion worthy of serious consideration. We confess being to a large degree in sympathy with it and with much of the author's comment thereon. It is to be noted, however, that in the case of closely related subspecies, the normal range of individual variation might make it impossible to properly refer occasional specimens without a knowledge of the locality of their origin; and probably more than once has the mistake been made of recording a western race from an eastern locality on the basis of an aberrant eastern bird.

In regard to slightly differentiated insular forms, it was at one time quite generally held that as there could not be actual intergradation between such forms and the mainland stock (in the case particularly of the smaller land mammals), owing to their physical isolation, it was better to recognize such forms as species than as subspecies, since the latter are either known or assumed to intergrade through the continuous range of the geographical forms of a widely dispersed species. Of late, however, this method is being largely abandoned, slightly differentiated insular forms being now very generally treated as subspecies.

Now that Mr. Clark has voiced the 'contempt' long held by morphologists, physiologists and embryologists respecting the work of systematic zoologists, the retort may be made that the contempt is, to a certain extent, mutual, and perhaps to some degree not without cause on both sides. But only the most narrow-minded of either class can fail to recognize good work outside of their own circumscribed specialities. A certain class of the 'section-cutters' take little account of the broader relations of animals to their surroundings, and in their histological and statistical investigations have been known time and again to work on a lot of heterogeneous material under the impression that it was all comparable and homogeneous,— as conspecific while in some instances it was not even congeneric, to say nothing of generalizations under statistical methods based on incongruous and non-comparable material.

"*4. Characters which will not distinguish corresponding ages or sexes of two forms ought not to be made the basis of a new name.*

"This seems so self-evident, I hesitate to state it, but as it may prove the one on which we can all agree I mention it, although it is no more obvious to me than principles one and three. Of course this does not mean that the characters must be present in both sexes at all ages. On the contrary, the characters may be present only in one sex or at a particular time of life, but they must distinguish from the corresponding sex or age."

The author's comment under 'Principle 4' to some extent explains its intent, without which it would be quite absurd. Thus: "Characters which will not distinguish corresponding ages or sexes of two forms," etc.; but he evidently does not mean this to apply to species in which, while the adult males are too distinct to be confounded by the merest tyro, the females and young cannot be positively discriminated by the expert; or in other cases where, while the females are distinguish-

able, the adult males are indistinguishable. As it stands, even with the explanation, it has little relevancy or raison d'être.

"*5. Characters which are notoriously variable in a given group ought not, within that group, to be made the basis of a new name.*

"As an example of what is meant by this principle, the common starfishes (*Asterias forbesi* and *vulgaris*) of the New England coast may be cited. Their color is so remarkably variable that it would be folly to form subspecies based upon the color alone.

"*6. Characters which may be fairly interpreted either as individual peculiarities or as dichromatic diversity, ought not to be made the basis of a new name.*

"If this principle were honestly followed many new species and subspecies would be cancelled, and it would lead to much greater caution in basing new names upon single individuals.

"The above six principles are suggested, not with any idea that they will meet with universal approval, but in the hope that they may precipitate a discussion which will lead to definite results. At some not far-distant day let us trust, the charge of basing new names upon 'distinctions without a difference' will be one that cannot be brought legitimately against American zoologists."

Respecting "5" and "6," little need be said; they are certainly harmless, if not very helpful, for no experienced 'systematist' is likely to violate either.

The concluding paragraph of Mr. Clark's paper is given as clearly showing his good intentions. This republication of his paper in full, and the running comment thereon, may be taken as an attempt to comply with his desire that it "may precipitate discussion which will lead to definite results."—J. A. A.

Mascha's 'The Structure of Wing-Feathers.—This is an account[1] of an investigation by Dr. E. Mascha, under the direction of Professor R. von Lendenfeld of the Imperial German University in Prague, with the object of giving "a detailed account of the morphology of the wing-feathers of birds as used in flight," made with the hope of supplying "needed and valuable information for those interested in the great problem of aërial navigation." It is based on the examination of the quills of about 25 species, belonging to about a dozen orders, and comprising birds of most types of flight. Their histological structure is described in detail, and illustrated by figures grouped to form 16 plates. The text has apparently suffered in translation from the original German manuscript (to be published in the 'Zeitschrift für wissenschaftliche Zoologie,' here and there occurring terms and sentences by no means clearly expressed. At the end of the paper a 'summary of results' is given, in sixteen short para-

[1] The Structure of Wing-Feathers. By Dr. E. Mascha. Smithsonian Misc. Coll., Quarterly Issue, Vol. III, pp. 1–30, pll. i–xvi. May 6, 1905.

graphs. Similarity of structure in several important features is found to be common to the Owls and Caprimulgi which are not met with in any other groups. Whether or not the author's investigation will aid those interested in aërial navigation, it forms an important contribution to our knowledge of the structure of the flight feathers in birds.— J. A. A.

Jacobs's West Virginia Bird Notes.— Number IV of Mr. Jacobs's 'Gleanings'[1] consists of a briefly annotated list of the summer birds of Monongalia County, West Virginia. As the list, numbering 51 species, is based on observations made June 1, 1895, it is a good record for a single day's work. The list is followed by a few supplementary notes made on June 19 of the same year, and on August 21–23, 1897, which include a number of species not given in the formal list.— J. A. A.

Howe's 'Fifty Common Birds of Vermont.'— This brochure of 92 pages[2] "has been written for the purpose of creating among teachers and school children of our State a greater and a deeper love for Vermont birds." It is evidently well adapted to this end. Brief descriptions are given of fifty of the more common species met with in Vermont, with such further comment as should render them easily recognizable, aided by a text figure of each species, usually from photographs of mounted birds. Unfortunately some of them were taken from rather unsightly specimens. An appropriate introduction precedes the general text, which is followed by lists of birds noted by different observers at several localities, the species being given under their common English names. A line to each is sufficient, by use of abbreviations, to indicate the season, relative abundance, and date of earliest arrival. These lists are: Birds of Brattleboro and vicinity, by Mrs. Elizabeth B. Davenport; birds about St. Johnsbury, compiled by Miss Isabel M. Paddock; birds of Bennington and vicinity, by Dr. and Mrs. L. H. Ross; birds of Rutland County, by G. H. Ross; migration list of birds for Bristol County and vicinity, by A. C. Dike; also a nominal list of the birds of Vermont, based on

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[1] Gleanings IV. | Some notes | on the Summer Birds | of | Monongalia County, | West Virginia. | — | Observations made near | Blacksville and Morgantown and along | the Monongahela River | — | By | J. Warren Jacobs, Waynesburg, Pa. | — | 1905 | Independent Printing Co.—8vo, pp. 11 and frontispiece. 15 cents.

[2] Fifty Common Birds of Vermont. By Carlton Dexter Howe, Principal of the Essex Junction High School, President of the Audubon Society of Vermont.= Circulars of Educational Information, No. XVIII. Prepared for Teachers and School Officers. Issued by the Department of Education, State of Vermont. Montpelier, 1905. 8vo, pp. 92, with 50 text figures.

the list of Perkins and Howe, published in 1901. A few pages of further useful and pertinent information conclude this useful little manual.— J. A. A.

Oberholser on the Nomenclature of Certain Genera of Birds.[1]— Seventeen generic names and a few specific names are here held to require change, the specific names belonging to genera here treated. The first name considered is *Bellona* Mulsant & Verreaux (1866), which, as Mr. Riley (Auk, 1904, p. 75) recently pointed out, is preoccupied by *Bellona* Reichenbach, 1852. Instead, however, of requiring a new name, as claimed by Riley, it may be replaced by *Orthorhynchus* Lacépède, 1799, for which the type was fixed by Gray in 1840 as *Trochilus cristatus* Linn. We agree with Mr. Oberholser that *Orthorhynchus* is the proper name for this genus of West Indian hummingbirds, for which it was formerly for many years in current use. Consequently Riley's substitution of *Orthorhynchus* for *Chrysolampis*, and of *Chrysolampis* for *Eulampis* are uncalled for and the hitherto current names of these genera remain unchanged. Mr. Riley's effort is cited by Mr. Oberholser as a "forcible illustration of the difficulty and unsatisfactory nature of generic type determinations by elimination." As we have said elsewhere (Science, N. S., XXI, p. 431, March 17, 1905): "The results will vary somewhat with the experience and qualifications of the user of the method, if the conditions of the question are especially complicated and perplexing....", while "experts in such cases rarely reach different conclusions...."

"*Dromæus* Vieillot" is shown to be properly *Dromiceius*, the form first used by Vieillot, who did not use *Dromæus*; *Hydrornis* Milne-Edwards, being preoccupied, is replaced by *Dyspetornis*, nom. nov.; *Nænia* Boie, being preoccupied, a substitute is found in *Inca* Jardine; *Gnathosittaca* Cabanis, being preoccupied, is replaced by *Ognorhynchus* Gray; an earlier name for *Dasyptilus* Wagler is found in *Psittrichas* Lesson; *Nanodes* Vig. & Horsf., being preoccupied, a substitute is found in *Euphema* Wagler; *Sharpia* Bocage being preoccupied, and there being no available substitute, it is replaced by *Notiospiza*, nom. nov.; similarly, *Malacopteron* Eyton is replaced by *Horizillas*, nom. nov.; *Hedymela* Sundevall is antedated by *Ficedula* Brisson; *Chenorhamphus* Oustelet, being preoccupied, is replaced by *Conopotheras*, nom. nov.; *Charitospiza* is a new name for the South American genus formerly known as *Tiaris*, containing the *Fringilla ornata* Wied; this specific name being preoccupied is changed to *eucosma*, nom. nov.

The status of four other names — *Xiphorhynchus*, *Vermivora*, *Cotur-*

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[1] Notes on the Nomenclature of Certain Genera of Birds. By Harry C. Oberholser. Smithsonian Misc. Coll., Quarterly Issue, Vol. III, pp, 59–68. May 13, 1905.

niculus, and *Ammodromus* — three of them proposed by Swainson in 1827, is less easily decided, although Mr. Oberholser considers that they "must apparently be changed." He accordingly proceeds to transfer the currently recognized species of *Dendrornis* Eyton to *Xiphorhynchus*, and to replace the superceded *Dendrornis* by the new name *Xiphornis*; *Vermivora* is made to replace *Helminthophila*; *Coturniculus* is replaced by *Ammodramus*, and a new name, *Ammospiza*, is provided for the group currently known as *Ammodromus*. As stated elsewhere (*antea*, pp. 400–407), we consider these changes unfortunate and undesirable, because unnecessary.— J. A. A.

Forbush on the Decrease of Birds and Means for their Protection. — In a 'Special Report' of more than a hundred pages, made under the direction of the Massachusetts State Board of Agriculture,[1] Mr. Forbush has compiled a mass of information on this subject of the utmost interest and importance. It is based largely upon replies to circulars sent out in July, 1903, to naturalists and other intelligent observers, soliciting information regarding the decrease of birds in Massachusetts. Information of more or less value was thus obtained from 217 correspondents. An analysis of these reports, as presented by Mr. Forbush, indicates a great decrease in the number of game birds, especially water-fowl and shore birds, and also in most of the birds of prey, while most of the insectivorous and song birds have well held their own, with local fluctuations in numbers, for the most part readily explained.

The subject matter of the Report is well arranged, and the evidence is presented with fairness, unbiased by sentiment or any evident desire to make out a case. In reference to the destruction of birds by the elements, with special reference to the unusual weather of 1903–04 — the June rainstorms of 1903 and the severe winter following — it is gratifying to find that while many species suffered severely, only the Purple Martin appears to have met with a "lasting or permanent check." Regarding the general subject, the "expert evidence," or the testimony of competent observers, is summarized by counties, and the conclusion therefrom is "that with the smaller species the natural balance of bird-life is now fairly constant in Massachusetts and the neighboring States." The birds reported as diminishing in numbers are then taken up by families, beginning with the Grebes, and the evidence presented, contrasting present with former conditions. Among the water birds, as the gulls, terns, ducks and geese, some species have suffered great decrease, although many of the ducks

[1] Special Report on the Decrease of certain Birds, and its Causes, with Suggestions for Bird Protection. By Edward Howe Forbush. Prepared under the direction of the Massachusetts State Board of Agriculture. Fifty-second Ann. Rep. Massachusetts State Board of Agric., pp. 429–543. with 2 pll. 1905.

appear to have well maintained themselves; which, however, is not the case with the shore birds (Limicolæ), which have nearly all decreased greatly in number. Those now considered common were formerly abundant, as were some that are now rare or casual, some of the larger species having become nearly exterminated or driven off the coast.

In regard to the cause of this decrease, it is "evident that man and his works are of the most importance." The first rank is given to sportsmen, or 'so-called sportsmen,' the second to "Italians and other foreigners"; market hunters rank third, and bird shooters and trappers fourth; while the clearing and draining of land, and other modern improvements, directly or indirectly contribute a smaller and for the most part non-preventable share. Detailed statements of facts well indicate the rôle respectively enacted by these agencies.

Considerable space is given to a consideration of the natural enemies of birds, as cats and dogs, foxes, skunks, weasels, crows, jays, and the English Sparrow — last but not least, although "it is well that the fox and crow are not protected by law," in proof of which Mr. Forbush gives abundant evidence.

Finally suggestions are made for the better protection of birds, which include educational work, the improvement and better enforcement of the laws, and "*control of the cat*," which is admitted by all careful observers to be one of the worst enemies of wild birds.

Mr. Forbush's 'Special Report,' taken all in all, is one of the most judicial, instructive, and important publications in the interest of bird protection that has yet appeared, and should have the widest possible circulation.— J. A. A.

Palmer on Game Protection.— In a recent paper of twelve pages Dr. T. S. Palmer recounts 'Some Benefits the Farmer may derive from Game Protection.'[1] These are security against trespass on the part of hunters; a check on hunting, through the requirement in a number of States of a hunting license, thus checking the number of would-be hunters roaming at will over a State; giving the land owner the right to eject trespassers and to collect damages for injury to his property; the protection of useful birds, as the insectivorous and seed-eating species; protection against the introduction of injurious species of mammals and birds; financial benefits, arising from the sale of live game for propagating purposes, and the lease of hunting privileges, etc. Each of these is explained and its advantages commented on at length.

Another paper by Dr. Palmer relating to the protection of game and birds is a 'Directory of State Officials and Organizations concerned with the Protection of Birds and Game.'[2] This gives a list of the State

[1] Yearbook of U. S. Department of Agriculture for 1904, pp. 509–520.

[2] 'Circular No. 50' of the Bureau of Biological Survey, United States Department of Agriculture. 8vo, pp. 16. Revised to Aug. 15, 1905.

officials of all the States and Territories of the United States and the Provinces of Canada, their titles, names, and addresses, and the titles of their official publications. Also a list of all the National and State organizations interested in game and bird protection, with the names and addresses of the president and secretary of each; and there is a similar list of all the Audubon Societies.

Still another useful publication is "Poster No. 10, August, 1905," prepared by Dr. Palmer and Messrs. Henry Oldys and R. W. Williams, Jr., and issued by the United States Department of Agriculture (Biological Survey), giving the 'Close Seasons for Game in the United States and Canada, 1905.'

These publications indicate the activity and up-to-date character of the work of the Game Preservation Division of the Biological Survey, in charge of Dr. Palmer, and give information of the greatest importance and convenience to those interested either in the preservation or pursuit of game, or the protection of birds. — J. A. A.

NOTES AND NEWS.

WALTER E. BRYANT, a Corresponding Member of the American Ornithologists' Union, died in San Francisco, California, May 21, 1905. His place in the history of West Coast ornithology is important by reason of his substantial and accurate contributions to the literature of the subject and the influence of his personality upon other workers. As Mr. Joseph Grinnell has said in another place: "The life histories of many of our remotely restricted species would remain to-day almost wholly unknown if Bryant had not spent lonely months in their study and then composed what he learned in the form in which we find it now so instructive." His explorations brought to light a number of new birds and mammals, some of which bear his name.

Bryant's first article on natural history appeared in 'Science News' Vol. I, No. 7, 1878, but "the majority of his published writings appeared from 1887 to 1889 in the 'Bulletin' and 'Proceedings' of the California Academy of Sciences, and from 1890 to 1893 in 'Zoe,' a periodical published for four years at San Francisco. These seven years marked the period of Bryant's greatest activity in natural history lines, and the articles resulting from his work evince an evident endeavor to express plainly and accurately whatever he thought worthy of record. Not that his descriptions and recitals are tiresomely commonplace, for I have seldom read anything more fascinating to a naturalist than the accounts of his experiences while collecting in Lower California, and on Guadelupe

Island. And as for the scientific value of Bryant's recorded observations, where can we find any more reliable and valuable contributions to West Coast ornithology.[1] Between 1880 and 1894 Bryant published forty articles and notes on ornithological subjects. Of these the more important are: 'Nest and Eggs of *Myiadestes townsendi*' (Auk, I, 91); '*Piranga rubriceps* and *Tringa fuscicollis* in California' (Ibid. IV, 78); 'Additions to the Ornithology of Guadelupe Island' (Bull. Cal. Ac. Sci. II, 269); 'Discovery of the Nest and Eggs of the Evening Grosbeak (*Coccothraustes vespertina*)' (Ibid. II, 449); 'Description of a New Subspecies of Petrel from Guadelupe Island' (Ibid. II, 450); 'Birds and Eggs from the Farallon Islands' (Proc. Cal. Acad. Sc. 2d ser. I, 25); 'Description of a New Subspecies of Song Sparrow from Lower California, Mexico' (Ibid. I, 197); 'Descriptions of the Nests and Eggs of some Lower Californian Birds, with a Description of the Young Plumage of *Geothylypis beldingi*' (Ibid. II, 20); '*Puffinus griseus* (Gmel.), *Puffinus gavia* (Forst.), and *Stercorarius pomarinus* (Temm.) on the Coast of California' (Ibid. II, 87); 'A Catalogue of the Birds of Lower California, Mexico' (Ibid. II, 237); 'Notices of Supposed New Birds' (Zoe, I, 148); 'The Cape Region of Baja California' (Ibid. II, 185); 'A Check-list of the Water Birds of California' (Ibid. III, 135); 'Occurrence of *Clangula hyemalis* in California' (Ibid. III, 363).[2] Among these papers were several based upon the work of others and illustrate a characteristic of the author. He was in correspondence with many of the younger ornithologists of the West and was continually encouraging them and suggesting lines of work or observation to them. If results of importance were thus secured, he often elaborated them for publication, always giving fullest credit to the observers. In this way he brought out many interesting points which otherwise might never have seen light. He also wrote upon the mammals of the regions which he visited, having described several very distinct forms.

Walter E. Bryant was born January 14, 1861, at Sonoma, Sonoma County, California, and was the son of Daniel Sharp and Susan H. Bryant. His parents moved to Oakland when he was four years old and he resided there (with few exceptions) until 1896 when he moved to Santa Rosa. His education was secured in a private and, subsequently, in the public schools of Oakland. As a child he was passionately fond of natural history, especially of flowers. He was trained from childhood by his father in the use of firearms, his first gun having been given him when he was seven years old. When still quite young he commenced collecting insects and eggs, and he also mounted birds, having been instructed by his father. His father, who was at one time a very prosperous merchant of San Francisco, had been interested in birds as an amateur and had formed a considerable collection, chiefly of mounted

[1] Joseph Grinnell in 'The Condor,' Sept. 1905.

[2] The writer is indebted to Mr. Joseph Grinnell for this list.

specimens, which was doubtless the inspiration of the son. In 1884 Bryant received instruction from William T. Hornaday in mounting mammals, and he studied museum work at the National Museum, and the Museum of Comparative Zoölogy in Cambridge.

The greater part of his time was given to ornithology and other natural history work. From 1886 to 1894 he was curator in the California Academy of Sciences. His principal expeditions during which he made natural history collections were as follows: 1883, summer in Oregon; 1884, Guadelupe Island in December; 1885–'86, Guadelupe Island for four or five months in winter; 1887–'88, California and Nevada; 1889, vicinity of Magdalena Bay and adjacent islands, Lower California; 1890, Gulf region, Lower California; 1892, in the spring, San José del Cabo. and vicinity, L. C.; 1901, Central America; 1902–'03, two summers in Alaska; June, 1904–April, 1905, San Blas, Mexico.

Bryant's ornithological work, for which he had an unusual enthusiasm, was undoubtedly much curtailed by a series of misfortunes, financial and otherwise, which befell him just at the time when he should have been doing his best work. But for these unfortunate circumstances he might have been greatly more active. He was especially interested in hummingbirds, of which he had a large collection. This, with his collection of nests and eggs, is now the property of his mother. He gave his mounted birds to his father previous to his last trip, and his mammals were sent last year to the Milwaukee Museum. His other bird skins were disposed of a number of years ago to the California Academy of Sciences, in coöperation with which institution some of his more important expeditions were undertaken.

A little over a year ago Bryant went to San Blas, Mexico, to investigate and straighten out the tangled affairs of a fruit company. With his usual conscientious care he thoroughly succeeded, but overworked, and in that abominable climate brought on a serious illness which later caused his death. Bryant was the moving spirit and only president of the short lived California Ornithological Club which was organized in San Francisco in 1889. Although the sudden removal of several of its active members made this club a failure it served a purpose as the forerunner of the Cooper Ornithological Club which appeared a few years later. Bryant was at one time an Active Member of the A. O. U. and later was made a Corresponding Fellow. In recognition of his services to California ornithology he was elected to honorary membership in the Cooper Ornithological Club, of which organization he was once the president.

Two well known western birds bear his name, *Ammodramus sandwichensis bryanti* Ridgway, and *Heleodytes brunneicapillus bryanti* Anthony. Two species of mammals have also been named for him, a woodrat, *Neotoma bryanti* Merriam, and a pocket mouse, *Perognathus bryanti* Merriam. —W. K. Fisher.

DENIS GALE, a well known ornithologist, died at his home in Denver, Colorado, Feb. 26, 1905. Mr. Gale was born in London Aug. 10, 1828. When he was a boy of but five years his parents came to America and settled in Quebec, Canada. While in Quebec he attended school at a boys' seminary until he was fifteen years of age, when he quit school to work in the lumber business.

His duties in this business necessitated his traveling many miles to visit logging camps in the environs of Quebec, these journeys being often made on snow shoes and in sleds. It was while he was thus engaged that his propensity and love for natural history received their quickening impulse from his natural surroundings. Laborious journeys were made light by his keen interest in every bird that flitted across his path, and with his note-book ever ready to receive its daily contributions he there began active work in the ornithological studies that he pursued with few interruptions through life. He was possessed of keen vision and hearing, was quiet and reserved in disposition, and even as a boy of thirteen or fourteen he shunned the plays of his schoolboy friends and sought solitude in fields and woods.

He remained in Quebec till he had reached the age of forty when he moved to Albany, N. Y., where he became engaged as an artist and art dealer, giving lessons in painting and drawing. Three years later he moved to Philadelphia, Pa., and there followed the same occupation.

He was a recognized critic in the fine arts and was honored with numerous responsible appointments. In 1878 he was given charge of the United States art exhibit in Paris, and in 1880 was honored with a similar appointment at the exhibition in California.

In 1881 he became interested in mining at Gold Hill, Boulder Co., Col. During the first eleven years of his mining venture he continued to make his home in Philadelphia, coming to Colorado each year in April and remaining through November. Although he had been forced on account of his business and urban surroundings to practically discontinue his nature work while in Albany and Philadelphia, when he first came to Colorado he became so impressed with this new field and the excellent opportunities before him that his natural inclinations were again given rein and he became one of the pioneer naturalists of our State.

In 1892 he moved with his family from Philadelphia to Denver, where he continued to live up to his death, making his summer home at Gold Hill.

His natural history work was chiefly along oölogical lines, although he did some work in collecting and preparing bird skins. With mammals he did but little but in this work he has the discovery of one new mouse to his credit. Of all the new material that he collected he generously sent the first and best to the National Museum at Washington, which has been the recipient from him of several hundred bird skins and sets of eggs. He took the first set of Clark's Crow's eggs ever taken in Colorado,

which set is now in the National Museum. He was a personal friend of Captain Bendire, and in his book 'Life Histories of Birds of North America,' as well as in other bird publications, his name may be found mentioned along with an interesting note on birds. Being of a retiring disposition he avoided publicity, and it is to be regretted that he seldom, if ever, wrote of his interesting observations and discoveries.

In 1892 he was accidentally shot in the knee, which accident made it difficult for him to get about on foot to study the habits of birds. Thus again his nature work was interrupted never again to be resumed. The collection of birds' eggs which he was at that time making, and which he retained until his death, is now in the possession of the University of Colorado. [See also *antea*, p. 422.]

In the history of our State the name of Denis Gale will be recorded as a faithful, enthusiastic pioneer bird student, and the memory of his life and work among us will ever serve as an impetus to us younger bird students to take up the work where he left it and do our little part in carrying it to completion. — A. H. F.

Death of Guy M. Bradley. — The cause of bird protection has had a serious set-back in the murder of Guy M. Bradley, who was employed by the National Association of Audubon Societies as Warden in Monroe County, Florida. He was also the County Game Warden by appointment of the Governor. The district in which he acted was a very large and extremely wild one, extending from Chokoloskee Bay on the north, through the southwestern part of the Everglades, the Thousand Island district, Cape Sable, and all of the chain of Keys west of Long Key, including the city of Key West.

His territory demanded a man of iron nerve and unfaltering courage in order to face the dangers that always surrounded him. Outlaws, both white and black, lived in the recesses of the swamps, and plume hunters, who were hardly of a better class, were always on the watch for an opportunity to carry on their trade if they could escape the vigilance of the Warden. Bradley possessed a cast-iron constitution and untiring energy, and no hardship of heat or storm or fatigue seemed able to keep him from performing his duty. He was one of the quickest and best shots in southern Florida, and his murderer must have shot him unawares. The history of the case as sent to the Association by Attorney Lewis A. Harris indicates that the murder was premeditated and cold-blooded. Walter Smith anchored his schooner opposite the home of Bradley and then sent his two sons to a Key where they shot some protected birds. This was probably done to lure the Warden on. He went out in a small boat in order to arrest the eldest of the lads who had been recalled to the schooner by a signal. Bradley on reaching the side of the larger boat told the boy he was under arrest and that he must get into his, Bradley's, boat. This, by order of his father, he did not do; Walter Smith then told Bradley that if he attempted to take the boy that he would shoot. Smith

claims that Bradley then fired one shot at him from a revolver but missed; thereupon he shot with a Winchester rifle at Bradley. He claims that his victim fell on the bottom of the boat but immediately struggled to his knees and attempted to fire his revolver again but was unable to do so. Bradley's body was permitted to float away in his boat and was not found until twenty-four hours after. The statement of Smith that his victim tried to shoot a second time seems very improbable. The ball struck Bradley on the upper part of the right breast, ranged downward through the vitals and pulverized about four inches of his backbone below the last rib. Death must have been instantaneous.

The National Association has engaged the best criminal lawyer in Key West, who was a devoted friend of Bradley, to assist the public prosecutor in conducting the case. The murderer is confined in jail at Key West, being unable to secure $5,000 bail, awaiting the action of the Grand Jury, which meets in November next.

Guy M. Bradley was an ideal man for the place he filled and it will be hard to replace him, for men of his character and peculiar qualifications are difficult to find.

The saddest part of the story is the result of this sudden and unnecessary death; a young widow is left to struggle alone and care for two fatherless little ones. This poor widowed mother deserves the help of every person who is interested in birds whether as ornithologists or protectors, or both. A fund has been started for the benefit of Mrs. Bradley and her children, and let us hope a large enough sum will be realized to purchase a small annuity or home for them. The readers of 'The Auk' who desire to swell the Bradley Fund may send their contributions to the undersigned.— WILLIAM DUTCHER.

A BRIEF notice was given in the July issue of this Journal (XXII, July, 1905, p. 333) of the Fourth International Ornithological Congress held in London, June 12–17, 1905. Thirty-eight papers were presented, some at general meetings, but the greater part at meetings of the five Sections. A list of the papers here follows:

General Meetings.

Presidential Address. Dr. Richard Bowdler Sharpe.

What Constitutes a Museum Collection of Birds? Frank M. Chapman.

Aasgeier und Kaiseradler um Horst. Dr. Paul Leverkühn.

Stand der Ornithologie in Ungarn. Otto Herman.

Some phases of wear in feathers. Dr. J. Dwight.

Recensio critica automatica of the Doctrine of Bird Migration. Otto Herman.

The first bird-list of Eber and Peucer (1549) and its relation to the "Avium .... Historia" of Turner. Henry Scherren.

Presentation d'un Atlas des Planches coloriées de Brisson, attribué au peintre Martinet. Dr. Louis Bureau.

Notes on some Experiments in Hybridising Ducks. J. Lewis Bonhote.

Les Correspondances Ornithologiques du Professor Fred. Naumann. Dr. Paul Leverkühn.

Some Ornithological Results of the Scottish National Antarctic Expedition. William S. Bruce.

On Antarctic Birds. Dr. Edw. A. Wilson.

The Principal Aims of Modern Ornithology. Dr. E. Hartert.

Section I.— Systematic Ornithology, Geographical Distribution, Anatomy and Palæontology. President, Dr. P. L. SCLATER.

On new Neotropical Birds. Count von Berlepsch.

The species of the genus *Elainea*. Count von Berlepsch.

Vortheile und Nachtheile moderner— Arten und Unterarten Beschreibung und Namengebung. Dr. R. Blasius.

La Sterne de Dougall. Dr. Louis Bureau.

Nestling Birds and their Bearing upon the Question of Evolution. W. P. Pycraft.

On the Birds of Madeira. P. Ernesto Schmitz.

Notes on Tyrannidæ. Count von Berlepsch.

Ein letztes Wort über die sogenannte "*Ruticilla cairii*." Hans von Berlepsch.

La perdrix grise des Pyrénées. (*Perdix perdix charrela*.) Dr. Louis Bureau.

The significance of Sequence in moults and plumages. Dr. J. Dwight.

Section II.— Migration. President, OTTO HERMAN.

The unusual Migration of Brünnich's Murre in Eastern North America. J. H. Fleming.

Neuere Beobachtungen über den Herbstzug des Staares in Deutschland. F. Helm.

Section III.— Biology, Nidification, Oology. President, Prof. Dr. FATIO.

On Erythrism in Eggs. Rev. C. R. Jourdain.

Uniform selection of the nest of the Twite (*Acanthis flavirostris*) by the Cuckoo for egg-depositing. William Wilson.

A contribution to the Life History of the American Flamingo. Frank M. Chapman.

Die Pyrenäen und ihre Vogelwelt. Dr. R. Blasius.

A contribution to the Life History of the Brown Pelican. Frank M. Chapman.

Section IV.— Economic Ornithology and Bird Protection. President, H. E. DRESSER.

Reports on Investigation of the Food of Birds since 1900. Otto Herman.

The Usefulness of, and the Harm done by the Sparrow to Agriculturists. Igali Svetozár.

The present state of the Law for the Protection of Birds in Great Britain and Ireland. T. Digby Piggott.

Bird Legislation in Australia. Sir John Cockburn.

La Grosseur des Grêlaux dangereux pour les Oiseaux. Paul Martin.

The Red Grouse in its Economic and Recreative Aspects. William Wilson.

The Rationale of Bird Protection. Frank E. Lemon.

Section V.— Aviculture. President, E. G. B. MEADE-WALDO.

The importance of Aviculture as an Aid to the Study of Ornithology. D. Seth Smith.

In a single-page leaflet entitled 'Legaut's Giant Bird' distributed at the visit of the Congress to Cambridge, though not appearing in the list of papers, Professor Alfred Newton gives his reasons for believing that Legauts' Géant was a Flamingo and not a Ralline bird, and that consequently the genus *Legautia* Schlegel, based on the Géant, has really no foundation. In this view he agrees with Strickland (The Dodo and its Kindred, 1848, p. 60, footnote, and p. 64), who considered the Géant a Flamingo. He adds that "bones of a *Phœnicopterus* have been found in Mauritius," "while among hundreds or even thousands of birds' bones recovered from that island there is not one which can be assigned to a giant Ralline." The genus *Legautia* was founded on the figure of the Géant given in Legaut's 'Voyage,' but subsequent research has shown that this figure was not original, but copied from a drawing by Collaert, who "died more than one hundred and twenty years before Legaut sailed from Europe."

AN ARTICLE in a recent number of the 'Avicultural Magazine' entitled 'The Breeding of Song-Sparrows,' records the mating of a male Pileated Song-Sparrow with a female White-eyebrowed Song-Sparrow, and their successful rearing of young, of course in an aviary. While the fact is in itself of interest, we greatly question whether any readers of 'The Auk' would be able to recognize in the "White-eyebrowed Song-Sparrow" our well-known White-crowned Sparrow without the aid of the technical name, *Zonotrichia leucophrys*, which fortunately accompanies the 'English' name. We have often wondered why it is that English writers

so persistently and methodically ignore the American vernacular names of American birds, when they have occasion to refer to them. It is a general habit of long-standing, so that in citing the present instance there is no intention of criticising the 'Avicultural Magazine,' but merely to call attention to a general practice, not only in reference to birds but to other American animals, for which we have never been able to find a reasonable explanation. We might probably fill pages with lists of names like the case here cited. Our birds have standard vernacular names by which they are known to all American bird students, and being the book names of the birds employed by all American writers they cannot be unknown to intelligent bird students abroad. Where then is the excuse for using a stilted translation, as in the case of the "White-eyebrowed Song-Sparrow," of its Latin specific designation in place of its simple and far more characteristic American name of 'White-crowned Sparrow?' To make matters worse, the species is not even a 'Song-Sparrow,' which is a generic designation applied universally in America to a large group of wholly different birds, to which the White-crowned Sparrow is not closely related. It is the custom of American writers, when referring to the birds of other English speaking countries, to employ the names current in the countries where the birds live, and we do not see why it is not a good method for our English friends to follow when speaking of American birds. If they could bring themselves to do this their references to American birds would often be not only more intelligible but save some annoyance to American readers.

THE TWENTY-THIRD ANNUAL CONGRESS of the American Ornithologists' Union will be held at the American Museum of Natural History, New York City, beginning on the evening of Monday, November 13, 1905. The evening session will be for the election of officers and members, and for the transaction of routine business. Tuesday and the following days the sessions will be for the presentation and discussion of scientific papers, and will be open to the public. Members intending to present communications are requested to forward the titles of their papers to the Secretary, Mr. John H. Sage, Portland, Conn., so as to reach him not later than November 10.

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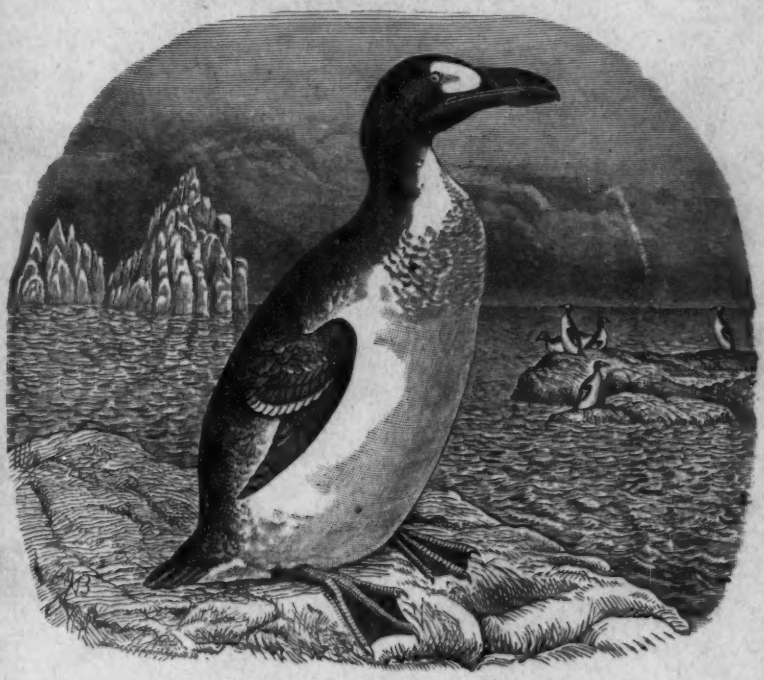

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